A Novel Approach to Priority-setting for HIV prevention among Adults in Uganda

By

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Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy
I am the author of the thesis entitled: A Novel Approach to Priority Setting for HIV/AIDS Prevention Among Adults in Uganda

submitted for the degree of Doctor of Philosophy.

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List of Abbreviations

ACE  assessing cost-effectiveness
ACER  average cost-effectiveness ratio
ACP  AIDS Control Programme
ADP  AIDS Development Partner
ART  Antiretroviral therapy
AQL  Assessing Quality of Life
BOD  Burden of disease
CA  Conjoint analysis
CBA  Cost–benefit analysis
CEA  Cost-effectiveness analysis
CHPT  Council Health Planning Team
CSC  Core Services Committee
CSF  Civil Society Fund
CSW  Commercial sex worker
CUA  Cost-utility analysis
CV  Contingent valuation
DALY  Disability Adjusted Life Year
DCE  Discrete choice experiments
DMA  Decision-making approach
EHCP  Essential Health Care Package
EML  Essential medicines list
EVIDEM  Evidence and Value: Impact on Decision-Making
FEO  Fair equality of opportunity
GAVI  Global Alliance for Vaccines Initiative
GDP  Gross Domestic Product
GFATM  Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria
GHI  Global Health Initiatives
HCA  Human capital approach
HCT  HIV counselling and testing
| SG     | Standard gamble        |
| SSA    | Sub-Saharan Africa     |
| STI    | Sexually transmitted illness |
| SWAp   | Sector Wide Approach   |
| THE    | Total health expenditure |
| TTT    | Time trade-off         |
| TWG    | Technical working group |
| UAC    | Uganda AIDS Commission |
| UBOS   | Uganda Bureau of Statistics |
| UK     | United Kingdom         |
| US     | United States          |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| USAID  | United States Agency for International Development |
| VAS    | visual analogue scale  |
| WHO    | World Health Organization |
| WTP    | Willingness to pay     |
Abstract

Introduction
Calls for a renewed focus on HIV prevention in Uganda and beyond are rife because the epidemic is out of control and the current response appears not to be well aligned to the populations most at risk. One factor explaining this is the inadequacy of the current approach to resource allocation. The aim of this study was to determine the contextual issues affecting priority-setting for HIV/AIDS in Uganda; develop a means of evaluating good priority-setting for the Uganda; and develop a pragmatic approach to priority-setting that will improve HIV resource allocation in the future.

Methods
The study was conducted in four phases. The first phase identified local stakeholders, contextual issues, decision-makers objectives that the framework should address and the criteria that the priority-setting framework should be cognizant of. The second phase included the development of a checklist of weighted criteria from the findings above for assessing existing frameworks for suitability for adoption or adaptation for the Ugandan context. The third phase was used to assess selected frameworks using the checklist and the fourth phase will test the framework in a pilot study.

Throughout this process, primary data was audio-taped and recorded in a journal, transcribed in English and imported into Nvivo 8 for analysis. Grounded theory was used to analyse the data alongside the collection of data in order to generate themes and concepts that arise from the studies. A weighted summation model was used to weight the criteria and score the frameworks.

Results:
The Assessing Cost-Effectiveness (ACE) was selected by local policy-makers using the checklist developed as the most appropriate framework for adoption in the Ugandan context. It was implemented in the pilot study using the GOALS model software to assess the cost-effectiveness of HIV prevention interventions and the second stage filter analysis. The approach ranked interventions based on cost-effectiveness and other factors like acceptability, equity, sustainability and affordability.

Conclusions and Recommendations
The implementation of the ACE approach suggests that it is ideal and is feasible to implement and results in plausible options for optimal resource allocation. Important steps for adoption and institutionalization include wide dissemination of the approach and findings to stakeholders as well as building institutional capacity and structures.
PART A: INTRODUCTION
Chapter 1: The Need for Explicit Priority-setting and Background to Study context

‘It’s a truism that all health care systems ration care. The issue is not whether but how.’ (Hunter 1995b)

1.1. Introduction

In the late 1980s, the issue of rationing of care and priority-setting became of international importance. This era saw many jurisdictions, such as the United Kingdom (UK), Denmark and Sweden, acknowledge the reality of priority-setting and subsequently engage in debate regarding its necessity and how it should be achieved. Generally speaking, the inevitability of priority-setting in the literature is due to the failure of the free market and governments to allocate healthcare in an equitable and efficient manner. It is also a result of the growth in healthcare expenditure. These factors are discussed in turn below.

1.2. Government and Market Failure to Allocate Health Services

The failure of governments to allocate resources for health in an efficient and equitable manner is the reason that many have called for allocation of resources based on the principles of the free market. The proponents for these principles have cited numerous reasons why the principles of the free market are useful for allocating resources, including:

- the poor coverage of cost-effective interventions, such as immunisation services to rural areas and people with low incomes
- the evidence of technical efficiency in health facilities in developing countries such as Uganda, Zambia and Botswana, as well as within national health systems
- the fact that the bulk of health service provision and financing is heavily skewed towards tertiary hospitals, leaving district and health centres less funded
- the large administrative costs and waste associated with the government playing a central role in healthcare decision-making
- The evidence that there are much more cost-effective interventions that could be provided to improve health for the greatest number of people, yet the majority of interventions implemented are not cost effective. This argument was central to the World Bank’s World Development report in 1993 and led to the development of minimum healthcare packages.

In a perfectly competitive market, the supply and demand of goods among well-informed consumers results in the optimum mix of goods in society. This market is generally designed to determine what is produced (allocative efficiency), how it is produced (technical efficiency) and who should have the products (distributive equity) (Carter 2001). The underlying philosophy for this benefit is libertarian. However, as Rice et al. (2000), Rice and Unruh (1998) and others in the literature have surmised, the adoption of the market mechanism in allocating resources is difficult in health because the peculiar characteristics of the healthcare market do not fit the assumptions of the free market model. These assumptions are summarised in the four key aspects of economic theory, as shown in Table 1.1 below.

**Table 1.1: Assumptions of a Competitive Marketplace**

<table>
<thead>
<tr>
<th>Market competition</th>
<th>Demand theory</th>
<th>Supply theory</th>
<th>Equity/distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no negative externalities of consumption</td>
<td>A person is the best judge of his or her welfare</td>
<td>Supply and demand are independently determined</td>
<td>The distribution of wealth is approved by society</td>
</tr>
<tr>
<td>There are no positive externalities of consumption</td>
<td>Consumers have sufficient information to make choices</td>
<td>Firms do not have monopoly of power</td>
<td>Source: (Rice &amp; Unruh 1998)</td>
</tr>
<tr>
<td>Consumer tastes are predetermined</td>
<td>Individuals know with certainty the results of their consumption decisions</td>
<td>Firms maximise profit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social welfare is based solely on individual utilities, which in turn are based solely on the goods and services consumed</td>
<td>There are no increasing returns to scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Production is independent of the distribution of wealth</td>
<td></td>
</tr>
</tbody>
</table>

Source: (Rice & Unruh 1998)
The healthcare market is characterised by factors such as uncertainties related to the need for effective healthcare, information asymmetry between doctors and patients, and the existence of externalities in health and healthcare. These characteristics mean that the application of this model in the healthcare market would inevitably result in an inefficient allocation of healthcare, with some services provided in greater amounts than required, and vice versa (Culyer 1971; Hurley 2000; Rice & Unruh 1998). In addition, there are significant equity considerations regarding the distribution of resources allocated and their benefits. A competitive marketplace would allocate healthcare according to the ability to pay, rather than the capacity to pay or need. The allocation of healthcare according to the ability to pay would discriminate against the poor. Thus, there are efficiency and equity rationales for government involvement in healthcare resource allocation.

Recent market reforms in healthcare systems in both developed and developing countries have served to demonstrate further that there are limits on the extent to which the free market can be relied upon to allocate scarce resources. For example, in Uganda, the use of health services by the socioeconomically disadvantaged improved once user fees were abolished (Nabyonga et al. 2005; Nabyonga Orem et al. 2011). Despite these limitations, there is a role for free market principles in tandem with the paternalistic role of the government in achieving the goal of providing healthcare for its citizens (McPake, Normand & Smith 2012; Rice et al. 2000). Mcpake, Normand and Smith (2012) note that free market principles, such as user fees, have an important role to play in complementing ‘supply pattern priority-setting’ mechanisms to contain healthcare expenditure and achieve efficiency.

The potential for market failure is a necessary, but insufficient, rationale for the involvement of the government in resource allocation (Carter 2001). Due to the likelihood of both government and market failure, it is increasingly recognised that there is a need to provide decision aids, such as economic evaluation, for decision-makers to guide resource allocation. The nature of these aids and the need for them has been the subject of much of the priority-setting literature.
1.3. Growth in Healthcare Expenditure

The unprecedented growth in healthcare expenditure and the demand placed on limited resources in developed and developing countries makes priority-setting both topical and inevitable. A recent Organisation for Economic Co-operation and Development (OECD) study found that the growth of health expenditure exceeded the growth of the economy in 15 OECD countries (OECD 2012). In developing countries, this is a more significant need because resources are even more constrained and the majority of countries spend below the recommended $44 per capita (WHO 2012). This increasing demand stems from the demographic changes in the West due to an ageing population who require a lot of care, and the growth in expensive technologies whose benefit may not necessarily outweigh the additional expense. The availability of information on the internet about effective therapies and policies that might include or exclude care has also served to move the issue of priority-setting or rationing to the forefront of the public’s concerns.

In developing countries such as Uganda, an epidemiologic transition from predominantly communicable diseases to non-communicable diseases, amid other growing health needs, makes the discussion on priority-setting pertinent (Murray et al. 2013). There is a general lack of systems to guide priority-setting in Sub-Saharan Africa (SSA). Glassman et al (2012), note that this lack of systems and explicit criteria to guide priority-setting makes the process vulnerable to partiality and lacking in transparency. The lack of priority-setting institutions and the underdeveloped capacity for decision-making mean that the issue of how these scarce resources are allocated must be considered (Kapiriri & Martin 2010; Rudan et al. 2010).

During the last few decades in SSA, the effect of the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) epidemic has also served to drive up healthcare expenditure, with HIV/AIDS expenditure alone comprising 19.4% of total health expenditure in 2007 (Amico, Aran & Avila 2010). In Uganda, HIV/AIDS spending grew from US$270 million to US$344 million between 2007/2008 to 2009/2010
This growth in HIV/AIDS expenditure has been replicated in other countries in the region (Ghana AIDS Commission & UNAIDS 2009; Government of Namibia et al. 2010). HIV has also resulted in a number of non-state actors becoming involved in priority-setting, such as the President’s Emergency Plan for AIDS Relief (PEPFAR). Experience has shown that these actors can significantly influence resource allocation, as will be discussed in Section 3.2.3. (Kapiriri 2012; Okuonzi & Macrae 1995).

Further still, official donor assistance (ODA) for HIV is slowing and has, in some instances, decreased (Institute for Health Metrics and Evaluation 2012). For instance, the PEPFAR budget for the 2013 financial year was marked by a dramatic decrease in bilateral HIV/AIDS funding of about 12.3% (Kaiser Family Foundation 2012). This is noteworthy because, as Chapter 4 shows, PEPFAR has consistently been the largest contributor for ODA for HIV/AIDS in SSA. As Figure 1.1 shows, the trends in overall global health funding and HIV/AIDS funding are declining.

This makes the discussion of priority-setting necessary, as further demonstrated by the recent debate series held by the United States Agency for International Development (USAID) and World Bank in Washington DC in the period leading up to the International AIDS Conference in 2012 (Over et al. 2012).
1.4. Background and Context

This section provides some insights into the setting of the thesis—Uganda. In addition, this chapter presents background information on the scale and effect of the HIV/AIDS epidemic and the response to this epidemic. This will be referred to throughout the chapters that follow, particularly when considering what the ‘ideal’ approach to priority-setting for this context is, as well as when assessing the existing priority-setting approaches.

1.4.1. Uganda: The Context of the Study

1.4.1.1. Geography of Uganda

Uganda is a land-locked country located in East Africa. It is bounded by Kenya on the East, Tanzania in the south, Rwanda in the South West, the Democratic Republic of Congo in the West and South Sudan in the North. The country’s area is 236,040 square kilometres—slightly bigger than the 227,010 square kilometres of Victoria, Australia.

The country lies in the equatorial belt (coordinates 1.1027° N, 32.3968° E) and thus enjoys a tropical climate, with rain for much of the year and two dry seasons during December to February and June to August. Some areas, such as the North Eastern part of Uganda, have a semi-arid climate. Mean temperatures range from 16°C to 30°C in much of the country, but may go higher than 30°C in the North East and below 16°C in the South West. It is home to Lake Victoria—the second largest freshwater body in the world and the source of the River Nile. This large freshwater body, which is shared by Kenya, harbours a number of fish species, chiefly tilapia. In addition, the country has many rivers and lakes.
1.4.1.2. Demographic Characteristics of Uganda

Uganda has one of the world’s fastest growing populations, with 34.1 million people in 2012 and an annual growth rate of 3.2% (Uganda Bureau of Statistics 2012). According to the Population Reference Bureau, Uganda is entering a demographic transition owing to a high fertility rate and decline in mortality rate, as can be seen in Table 2.1 below (Haube C & Gribble J 2012). This demographic change means that Uganda currently has one of the youngest populations in the world, with just under half the population aged less than 15 years. If the fertility rates are unchecked, this is projected to worsen by 2050.

Key indices such as life expectancy and infant and under-five mortality rates have improved over the years, as can be seen in Table 1.2 (United Nations 2011). However, some indices, such as the maternal mortality rate, have stagnated, with maternal mortality
remaining at 438 per 1,000 live births. In addition, literacy remains low, with approximately 20% of girls and 3% of boys having no formal education.

Despite the fact that Uganda has been hailed as one of the low-income countries (LICs) with the fastest economic growth rate, the rate of growth of gross domestic product (GDP) fell from 6% to 4.1% from 2011 to 2012. Levels of poverty are high, with 65% of Ugandans living on less than US$2 per day (Africa Development Bank).

1.4.1.3. Political Context

Uganda was a colony of the British prior to 1962, gaining independence in October 1962. The country experienced warfare since the early 1970s, and only managed to attain some peace and stability in 1986 after the current president, HE Yoweri Kaguta Museveni, assumed power in a military coup. The period of civil unrest in the 1970s and 1980s resulted in significant infrastructural destruction and the collapse of the health sector. This, in addition to the war itself, resulted in a decline in life expectancy and a difficult task of reviving the health sector (Okuonzi 2009).

Table 1.2: Trends in Demographics and Key Indices in Uganda

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Total population (thousands)</td>
<td>5,158</td>
<td>6,788</td>
<td>12,662</td>
<td>24,213</td>
<td>28,431</td>
<td>33,425</td>
</tr>
<tr>
<td>Population density (persons per km²)</td>
<td>21</td>
<td>28</td>
<td>53</td>
<td>100</td>
<td>118</td>
<td>139</td>
</tr>
<tr>
<td>Median age (years)</td>
<td>18.2</td>
<td>17.1</td>
<td>16.1</td>
<td>15.6</td>
<td>15.6</td>
<td>15.7</td>
</tr>
<tr>
<td>Dependency ratios*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child dependency ratio**</td>
<td>125.1</td>
<td>134.4</td>
<td>147.5</td>
<td>158.4</td>
<td>158.4</td>
<td>156.1</td>
</tr>
<tr>
<td>Old-age dependency ratio***</td>
<td>6.9</td>
<td>6.3</td>
<td>6.7</td>
<td>7.2</td>
<td>6.7</td>
<td>6.6</td>
</tr>
<tr>
<td>Total dependency ratio</td>
<td>131.9</td>
<td>140.7</td>
<td>154.2</td>
<td>165.6</td>
<td>165.2</td>
<td>162.6</td>
</tr>
<tr>
<td>Rates of population change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual population growth rate</td>
<td>2.7</td>
<td>3.3</td>
<td>3.1</td>
<td>3.2</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Infant mortality rate****</td>
<td>160</td>
<td>130</td>
<td>108</td>
<td>91</td>
<td>79</td>
<td>54</td>
</tr>
<tr>
<td>Under-five mortality rate****</td>
<td>267</td>
<td>217</td>
<td>177</td>
<td>148</td>
<td>126</td>
<td>90</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>40</td>
<td>45.4</td>
<td>49.9</td>
<td>48.0</td>
<td>52.2</td>
<td>54.7</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>6.90</td>
<td>7.05</td>
<td>7.10</td>
<td>6.75</td>
<td>6.38</td>
<td>6.20</td>
</tr>
</tbody>
</table>

* Dependency ratios refer to the number of dependents (aged zero to 14** and over the age of 65***) to the total population (aged 15–64)
**** Per 1,000 live births

Due to the economic collapse in this period, external aid to revive the economy led to the ever-growing role of non-state actors or donors in the formulation of economic and social policy. This involvement has resulted in economic, health and political reforms that have not always been beneficial to the country.

Uganda is divided into 132 districts, each with two to four subdivisions/sub-counties (Parliament of Uganda 1997). The political system in Uganda is decentralised, as stipulated in the 1993 Local Government Act. The Act provides for greater devolution of decision-making power and implementation of services to lower levels of decision-making. This system of decentralisation is replicated in the health sector (Parliament of Uganda 1997) and has important implications for the priority-setting of healthcare.

1.4.2. The HIV/AIDS Epidemic in Uganda

1.4.2.1. Effect of the Epidemic

An estimated 1.2 million Ugandans are living with HIV/AIDS, of which 87% are adults and 13% are children. Women in Uganda experience the worst of the epidemic, with approximately 57% of infected adults being women (Uganda AIDS Commission 2012b). In addition, the epidemic has resulted in an increase in the number of orphans and vulnerable children.\(^1\) Estimates show that since the epidemic’s arrival, the number of orphans due to HIV has increased by 1.2 million and four of every five double orphans\(^2\) have been orphaned by HIV/AIDS (Hladik et al. 2008).

The HIV/AIDS epidemic has had a huge economic and social effect on Uganda. Since the start of the epidemic, over one million Ugandans have died, with 64,000 deaths in 2009 alone (UAC 2010). The macroeconomic effect of HIV/AIDS in Uganda and SSA has largely been demonstrated by previous studies. Modelling studies conducted in Uganda

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\(^1\) ‘Vulnerable children’ generally refers to orphans and other groups of children who are more exposed to risks than are their peers. These children are most likely to be missed by regular programming and are subsequently more likely to experience negative outcomes, such as the loss of their education, morbidity and malnutrition.

\(^2\) ‘Double orphans’ is a term used to describe children who have lost both parents.
project that, without HIV/AIDS, Uganda’s GDP and GDP per capita would grow at an
average of 6.5% and 2.7%, respectively, per annum (Jefferis K & Matovu J 2008). The
effect of HIV/AIDS is shown in the projected growth rate of 5.3% and 1.7% per annum
for GDP and GDP per capita, respectively. The negative effect is considerable and the
assessment concludes that only long-term investments in prevention and treatment as
prevention would greatly offset this.

At the household level, the short-term and long-term effects of HIV/AIDS have also been
demonstrated (Jefferis K et al. 2008). The short-term effect of HIV arises mainly from
increased healthcare costs and, to a lesser extent, from funeral costs and decreased income.
The increase in poverty was estimated to be 1.6 percentage points. The negative long-term
effects are small because of the lack of healthcare costs due to the deaths of HIV-positive
family member.

Due to the resurgence of infections such as tuberculosis, pneumonia and meningitis,
among others, HIV/AIDS has increased healthcare expenditure and exerts a lot of pressure
on the fragile health system in Uganda. This pressure is demonstrated by the increased
demand for healthcare practitioners that are skilled in the management of HIV/AIDS and
occupancy in Rubaga Hospital—a large tertiary hospital in Kampala—found that 55% of
admissions were due to HIV/AIDS-related conditions and that mortality among HIV
infected patients (17.4%) was higher than that observed in non-infected patients (5.8%)
(Tembo et al. 1994). Further still, AIDS is the second highest cause of mortality in
hospitals in Uganda, at 9.4% (Uganda Bureau of Statistics 2012). AIDS-related
opportunistic infections, such as pneumonia, tuberculosis and meningitis, are also listed
among the top 10 causes of mortality.

The effect of the epidemic on the labour force is also considerable. From 1995 to 1999,
approximately 15% to 27% of public service workers died as a result of infection with
HIV/AIDS. The prevalence at this time was 4.6% to 13.2% (Ministry of Public Service
2000). The sectors most affected by attrition of workers resulting from HIV/AIDS include
education, health, finance and public administration. The costs of replacing these workers are greatest in the education and health sectors (Jefferis K et al. 2008).

1.4.2.2. Evolution of the Epidemic

The first case of HIV/AIDS in Uganda was reported in Rakai district in South Western Uganda in 1982. Since then, the epidemic has grown to a mature generalised 30-year-old epidemic. The number of patients requiring antiretroviral therapy (ART) based on the recent WHO treatment guidelines is 540,094. Of these, 58% were receiving ART as of 2011 (Uganda AIDS Commission 2012a)—this is an increase from the 48.3% reported in 2010. Despite this improvement, the number of new infections is thrice as high as the annual number of patients enrolled on ART. The health implications and resources required to meet this need are likely to be high.

The evidence on the status, trends and drivers of the epidemic, as well as the effects of the response, has traditionally been obtained from studies that include sero-behavioural studies (2005/06) (MoH 2006) and demographic health surveys (MOH 1989; UBOS 2012; UBOS & and Macro International Inc 2007), including the recently concluded National AIDS Indicator Survey (MOH 2012). Sentinel surveillance sites based in antenatal clinics around the country (Wabwire-Mangen et al. 2008) and longitudinal study sites in Rakai and Masaka (Kamali et al. 2000; Mbulaiteye et al. 2002) have also been useful in providing this information. The evidence shows that the major mode of transmission for HIV/AIDS in Uganda is through heterosexual contact (76%), followed by vertical transmission of the virus from mothers to newborn children (20%) (UAC 2009). Other less common modes of transmission are through blood transfusion, needle-stick injury and—to a lesser extent—homosexual contact.

The epidemic has undergone a number of changes that can be divided into three broad phases:

- **Phase 1 (1982 to 1992):** During this phase, the HIV epidemic evolved from a focal epidemic to a more generalised epidemic, with HIV prevalence in the adult
population peaking at 18% and reaching as high as 30% in some urban areas. The spread of the epidemic was mainly around the urban areas and major transportation roots.

- **Phase 2 (1993 to 2002):** During this time, the prevalence of HIV declined dramatically, reaching a nadir of 6.2% in 2002 (UAC 2009). The reasons for this decline have been the subject of much literary attention over the last few years because of the need to replicate whatever strategies proved most successful in causing this decline. However, it is difficult to attribute this decline to any intervention *per se*. The challenge is the lack of good data to allow conclusions to be drawn in a rigorous manner. However, some have attempted to investigate the reasons for this decline. While everyone agrees that improved sexual behaviour was one of the reasons, they disagree regarding which particular component had the greatest effect. To an extent, everyone agrees that reduction in sexual partners was a key contributing factor (Merson 2006; Slutkin et al. 2006). However, some argue that sexual abstinence and delay in sexual debut were also important (Low-Beer & Stoneburner 2003; Stoneburner & Low-Beer 2000; Stoneburner & Low-Beer 2004), while others argue that increased condom use was more important than abstinence (Cohen & Tate 2006; Green et al. 2006). More recently, a study using a mixture of sources (survey data, MOH documents and newspaper articles) showed that a reduction in the number of partners was the most crucial component, followed by condom use (Kirby 2008). In addition to sexual behaviour change, it is likely that the decline was also a consequence of the natural course of the epidemic—that is, death (James 2005).

- **Phase 3 (2003 to present):** This period has been characterised mainly by stagnation in prevalence rates, at a plateau of 6.3%, before an increase to 7.3%, as reported in the recently concluded Uganda AIDS Indicator Survey (MOH 2012). The Modes of Transmission Study shows that, during this time, a marked decline in condom use due to poor procurement, as well as a focus on treatment rather than prevention, could have been responsible for this increase. In addition, the prevention measures were not targeting the most at-risk populations (MARPs) (UAC 2009). It is also becoming increasingly apparent that, with the advent of
ART and increased availability of condoms, people are becoming complacent and taking more risks in their behaviour (Green et al. 2013; Kajubi et al. 2011).

In addition to the changes in trends, the evidence shows that, even though the epidemic is generalised, there is marked regional heterogeneity in the degree of severity of the epidemic. The Modes of Transmission Study (MOTS) conducted in 2008 shows that the highest prevalence rates were in the Central regions and the lowest were in the North Western regions, as shown in Table 1.3 below (UAC 2009). Further, there is a marked difference in the rural–urban distribution of the epidemic, with urban areas having almost twice the burden of disease (BOD) of rural areas.

**Table 1.3: Findings of HIV Prevalence in Uganda (2005)**

<table>
<thead>
<tr>
<th>Background characteristic</th>
<th>Women 15–49</th>
<th>Men 15–49</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage HIV-positive</td>
<td>Number tested</td>
<td>Percentage HIV-positive</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>12.8</td>
<td>1,435</td>
<td>6.7</td>
</tr>
<tr>
<td>Rural</td>
<td>6.5</td>
<td>7,956</td>
<td>4.7</td>
</tr>
<tr>
<td>Region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>10.2</td>
<td>1,565</td>
<td>6.6</td>
</tr>
<tr>
<td>Kampala</td>
<td>11.8</td>
<td>634</td>
<td>4.5</td>
</tr>
<tr>
<td>East Central</td>
<td>7.5</td>
<td>1,467</td>
<td>5.2</td>
</tr>
<tr>
<td>Eastern</td>
<td>6.2</td>
<td>813</td>
<td>4.4</td>
</tr>
<tr>
<td>North East</td>
<td>3.6</td>
<td>779</td>
<td>3.2</td>
</tr>
<tr>
<td>North Central</td>
<td>9.0</td>
<td>918</td>
<td>7.1</td>
</tr>
<tr>
<td>West Nile</td>
<td>2.7</td>
<td>906</td>
<td>1.9</td>
</tr>
<tr>
<td>Western</td>
<td>7.8</td>
<td>1,076</td>
<td>5.7</td>
</tr>
<tr>
<td>South West</td>
<td>7.1</td>
<td>1,232</td>
<td>4.4</td>
</tr>
</tbody>
</table>


The recently concluded AIDS Indicator Survey shows that this mosaic pattern has persisted, despite the response that was launched in 2005 to 2006. As can be seen from Figure 1.3 below, the Central region is once again the most affected, while the North Western and Mid-Eastern regions are the least affected. The Central, South Western and Mid-Western regions registered considerable increases in the prevalence of HIV/AIDS.
In addition to the geographical heterogeneity demonstrated above, the MOTS also shows that prevalence rates in some key populations are much higher than the general population. These MARPs include commercial sex workers (33%) and their partners (18%), bodaboda riders\(^3\) (8%), the fishing community (15%) and men who have sex with men (MSM) (13%). Others include long-distance truck drivers and mobile groups, such as cattle nomads. These MARPs have also been identified as drivers of the epidemic, given the nature of their work and mobility. Among incident cases, the majority (43%) were found to be in mutually monogamous couples (married or cohabiting), while individuals with more than one sexual relationship accounted for 24% and their partners accounted for 22%.

Very little data regarding changes in HIV incidence exist. Mbulaiteye et al. (2002) provide the only information in the trends in incidence during this time. They found a statistically significant decline in the incidence of HIV-1 in patients in the Masaka-based Medical Research Council (MRC) cohort from 8.0 to 5.2 per 1,000 PYAR\(^4\) between 1990 and 1999 (\(p = 0.002, 2\) for trend) in the years 1989 to 1998. This decline accompanied a statistically significant decline in prevalence from 7.8% in 1989/1990 to 6.4% in 1999/2000.

While the findings of this study have been extrapolated to the entire population and used to confirm that the decline in HIV incidence was partially responsible for the decline in prevalence, it is important to note that the study was based on a single cohort whose characteristics, such as sexual behaviour, could be different to other parts of the country. For instance, the proportion of men reporting five or more sexual partners varied in this period across the three rural cohorts. It varied 9.6% in Mwanza, compared to 2.1% in Masaka and 1.4% in Rakai (Low-Beer et al. 2002). In addition, Low-Beer et al. (2002) note that the study does not provide much rigour in determining the timing of the decline in incidence, which could have been in the late 1980s. The study reports that the reduction in incidence was due to reduction in casual sex and sexual partners.

\(^3\) Bodaboda riders are young men who provide public transportation using motorcycles.
\(^4\) PYAR refers to ‘person years at risk’.
Kamali et al. (2000) examined trends in incidence, prevalence, mortality and sexual behaviour during this period (although a shorter period than the above). They did not find a statistically significant decline in incidence rates or mortality. Wawer et al. (1994) similarly did not demonstrate a relationship between changes in incidence and a decline in prevalence. Only one longitudinal study has provided evidence that the decline in HIV incidence is over and that, in fact, HIV incidence may be rising. Schafer et al. (2008) showed that HIV prevalence in a rural cohort fell from 8.5% in 1990/1991 to 6.2 in 1999/2000, and then rose to 7.7% in 2005. They also showed that incidence fell from 7.7 per 1,000 PYAR in 1990 to 4.1 per 1,000 PYAR. Incidence is reported to have increased to 5.6 per 1,000 PYAR in 2004, reached an all-time low of 2.5 per 1,000 PYAR in 2005, and then, based on preliminary estimates, began to rise in 2006 (3.7 per 1,000 PYAR [95% confidence interval (CI) 2.3–5.8]).
1.4.2.3. The Response

When the Ugandan President assumed office in 1986, he established the AIDS Control Programme (ACP) in the MOH. The programme was mandated to provide information concerning HIV/AIDS to Ugandans to ensure the safety of blood products and provide care for those afflicted. In 1993, the UAC was established by Statute of Parliament under the Office of the President after it was recognised that the effects of HIV/AIDS went beyond the confines of the health sector and that a multi-sectoral response was required to mitigate its effects. This entity has overseen the development and implementation of HIV/AIDS policy in Uganda for the last two decades.

UAC oversaw the development of the first HIV/AIDS policy in 1993 (UAC 1993). Following this, the National Overarching Policy on AIDS was revised in 1995. The aim was to guide the implementation of HIV/AIDS services in Uganda. Following the advent of ART, a revision of the National Strategic Framework was completed, which resulted in the 1999/2000 to 2004/2005 National Strategic Framework that guided the response during that time. In 2005, another review of the plan was completed that resulted in the formulation of the 2007/2008 to 2011/2012 plan (UAC 2007), which has since been replaced by the newly formed 2011/2012 to 2015/2016 National Strategic Plan (UAC 2012).

The MOTS Know Your Response (MOTS-KYR) described the nature of the response during the last strategic period (UAC 2009). The portfolio of interventions in the response includes dispersing information, education and communication through the use of mass media and social media, such as music, dance and drama. These are intended to address the behavioural drivers of the epidemic through promoting abstinence (delayed sexual debut or secondary abstinence for the sexually experienced), being faithful to one’s partner, and condom use during risky sex (multiple partners, concurrent partners, transactional sex, discordancy and casual sex). The report notes that the design and scope of these interventions is unknown. In addition, the effectiveness of some of the
interventions is uncertain. In the forms in which they are currently being implemented, these interventions are not based on sound behavioural theory and differ greatly in the implementation modality.

Other interventions include HIV counselling and testing. This was one of the earliest interventions implemented in response to the epidemic. Implementation has evolved over time from an exclusively client-initiated model to include provider-initiated models, as well as home-based and family-centred models. Prevention of mother to child transmission of HIV/AIDS is another intervention in the portfolio that has been rolled out. The efficacy of this has been well demonstrated in Uganda and abroad (Guay et al. 1999; Jackson et al. 2003; Kilewo et al. 2009; Soorapanth et al. 2006; Wiktor et al. 1999). Other programmes include infection control and post-exposure prophylaxis for healthcare workers, treatment of sexually transmitted illnesses (STIs) that have been proven to increase the risk of HIV/AIDS transmission, ensuring blood transfusion safety and male medical circumcision.

The coverage of interventions for most MARPs is unknown. The UAC (2012a) notes that there are no services for MSM, despite the fact that a survey conducted in 2009 found that 31% of MSM had been married, a further 20% were still married, and 29% had fathered children and generally exhibited high-risk behaviour. The statistics show that, during their most recent sex act, only 53% had sex with a steady partner and only 49% used condoms. Only 69% used lubricant during their most recent sexual encounter, while 47% and 13% used alcohol and drugs, respectively, prior to sex (MUSPH 2010). All these factors indicate that MSM are engaging in high-risk behaviours.

In contrast, coverage for commercial sex workers (CSWs) is much better understood. A study conducted by the Ministry showed that 96% had access to condoms, although less than 80% used them. However, access to HIV counselling and testing (HCT) services and STI care is limited, with 13% and 28% of CSWs reportedly having limited access to HCT and STI care, respectively. Among partners of CSWs, 15% used condoms, while 19% reported that they had never used them (MUSPH 2010).
Although some interventions, such as wellness centres, have been piloted and implemented for long-distance truck drivers, these are still few in number, and the uptake of services by the intended users is low. In most cases, MARPs are expected to use the mainstream programmes that have been implemented for the general public (UAC 2009). Providing services for MARPs in this mainstream manner may not address the issues that are peculiar to MARPs, or may completely miss the hard-to-reach groups, such as the MSM and CSWs.

The recent release of the Uganda AIDS Indicator Survey (AIS 2011), the Uganda Demographic Health Survey (UDHS 2012) and the MOTS provided a unique opportunity to evaluate the success of the HIV prevention efforts over this time. Some of the data collected provide information on intermediate (process) outcomes, such as the usage of condoms, while other data provide more downstream outcomes, such as the reduction in the number of children born with HIV/AIDS or mortality. No information on the effect of the prevention efforts on life expectancy could be obtained. With regard to change in people’s knowledge of and attitudes towards HIV/AIDS, the AIDS Indicator Survey and Uganda Demographic Health Survey found that almost 100% of Ugandans have heard of HIV, more than 80% know that condoms are useful in limiting the spread of HIV/AIDS and more than 75% know that HIV/AIDS is contracted through sexual contact and passed from infected mothers to newborn children. However, the level of comprehensive knowledge is still low, at about 40% (UBOS 2012).

With regard to behaviour change, it was found that the proportion of girls who had sex before 15 years was 12%, which was the same as in 2005/2006, while in males, there was a slight increase from 14% to 18% in 2011. Among those who had high-risk sex in the last 12 months, the proportion of men using a condom during their most recent sexual act declined from 54% in 2005/2006 to 36% in 2011. A decline in women from 47% to 29% was noted (MOH 2012). The proportion of youths using condoms increased from 56% to 63% in males and from 39% to 53% in females. It was also reported that 2% of women and 9% of males had multiple sexual partners. This is an increment compared to the sero-
behavioural survey of 2005/2006 (UAC 2006). Changes in behaviour in MARPs could not be determined because there were no questions determining this and, in the case of transactional sex, there were no baseline values.

In general, an evaluation of the effectiveness of the response shows mixed results, with some indicators showing a desired improvement in behaviour and knowledge. However, of particular concern are the declines in the use of condoms in some groups, the lack of access to key interventions such as HIV HCT, and the low coverage of interventions such as post-exposure prophylaxis. In addition, the lack of interventions for most MARPs is worrisome.

The MOTS notes that the response to HIV over the period 2004/2005 to 2008/2009 was not targeted at the MARPs or at the populations with the highest incidence rates. The authors also noted that more emphasis was placed on treatment of HIV, rather than prevention. Further still, within the prevention portfolio, emphasis was placed on programmes that promote abstinence, despite the absence of any evidence of their effectiveness. Given these shortcomings, one of the recommendations of the MOTS is to improve the mechanism of selecting interventions for the response, as well as the allocation of resources for the response.

1.4.2.4. Priority-setting and Resource Allocation for Health and HIV in Uganda

Much of the priority-setting literature in the published domain pertains to priority-setting for the healthcare sector in Uganda, and not to HIV/AIDS specifically. The priority-setting process for the health sector has been described as a consultative process, including all major stakeholders at national and district levels (Kapiriri 2012). Priorities at the national level are determined historically within the constraints of the Minimum Healthcare Package that was defined in the sector’s only attempt at systematic priority-setting—the Uganda BOD study (Bobadilla & Cowley 1995b; Sengooba 2004).
At lower levels of the health sector, such as the district and the health facilities, priority-setting follows a historic funding model based on an allocation formula with a nominated adjustment, which often reflects a change in costs or in the population base (Kapiriri, Norheim & Martin 2007). The advantages of this approach include its inherent simplicity, the ability to keep expenditure within the allocated budget and the fact that there is no need for investment in time or training required for more complex approaches to decision-making. However, this model does not take into account issues such as maximising community benefit or the need for redistribution of resources between programmes (whether for equity, effectiveness or efficiency reasons).

Severity of disease and BOD are the most common values that guide decision-making in Uganda. Concerns of equity are also important, as is cost-effectiveness (Kapiriri, Arnesen & Norheim 2004; Kapiriri & Norheim 2004). However, despite the importance of BOD and cost-effectiveness, stakeholders are suspicious of technical approaches to priority-setting following the BOD study because stakeholders found the approach hard to understand (Kapiriri, Norheim & Heggenhougen 2003b).

1.4.2.5. Priority-setting for HIV/AIDS in Uganda

An understanding of the HIV financing landscape in Uganda is essential to understand some of the priority-setting issues for HIV/AIDS. Thus, the HIV financing landscape is discussed here. HIV/AIDS resources have increased over the past few years at a global and local level. In Uganda, funds increased from $186.8 million in 2005/2006 to $253 million in 2007/2008 (UNAIDS 2008).
Like all healthcare financing in Uganda, there are multiple sources of funding for HIV/AIDS. These include the Government of Uganda, external aid from AIDS Development Partners (ADPs) and out-of-pocket contributions from patients and their caretakers. Figure 1.4 shows the breakdown of funding by source in the years 2008/2009 and 2009/2010. Government funding is mainly through direct contributions from the budget (obtained through taxation or budget support from donors) and also in integrated health service delivery.

Zikusooka et al. (2009) report that, with the exception of the Multi Country HIV/AIDS Plan and, to some extent, The Global Fund, most donor money is not aligned to national priorities. In particular, PEPFAR has been shown to fund HIV/AIDS activities that have been predetermined in the Office of the Global AIDS Coordinator. For instance, as of 2006, the Leadership Act pertaining to resource allocation for PEPFAR stipulates that funds for HIV/AIDS activities should be broken down as shown in Figure 1.5 below.
In addition, it is recommended that 33% of PEPFAR funding for HIV/AIDS should be used for abstinence-only programmes. Evidence from countries such as Zambia and Uganda shows that recipient countries have largely adhered to this for fear of losing funding, and have subsequently largely excluded condom promotion from their prevention activities. Thus, the larger part of budget priorities for resources from donors are controlled by the donors and are not locally determined (Jaime Sepulveda et al. 2007).

The recently concluded National AIDS Spending Assessment provides a comparison of planned national priorities and the expenditure on HIV/AIDS over the period 2008/2009 to 2009/2010 (UAC & UNAIDS 2011). As can be seen in Table 1.4, even though the resources raised overall for the response were higher than planned, the relative proportions of expenditure show a decided bias towards treatment and programme support, as compared to HIV prevention. This suggests that the funding for the epidemic is not aligned to the national priorities.
In the wake of calls to harmonise external aid and the response to HIV/AIDS, the Civil Society Fund (CSF) was formed—a multi-donor funding mechanism that provides streamlined grants to civil society organisations to support the scale-up of HIV prevention and care services, as well as services for orphans and other vulnerable children (OVC). The fund is a partnership among civil society organisations, the Government of Uganda through the UAC, and Uganda’s ADPs (USAID, Department for International Development [DFID], Danish International Development Agency [DANIDA], Irish Aid, and Swedish International Development Cooperation Agency [SIDA]) (Civil Society Fund).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AIDS spending category</td>
<td>NSP</td>
<td>NASA</td>
</tr>
<tr>
<td>Prevention</td>
<td>104.9</td>
<td>108.9</td>
</tr>
<tr>
<td></td>
<td>30%</td>
<td>19%</td>
</tr>
<tr>
<td>Care and treatment</td>
<td>133.5</td>
<td>298.2</td>
</tr>
<tr>
<td></td>
<td>38%</td>
<td>51%</td>
</tr>
<tr>
<td>Mitigation</td>
<td>79.7</td>
<td>0%</td>
</tr>
<tr>
<td>Social protection and services</td>
<td>3.7</td>
<td>0%</td>
</tr>
<tr>
<td>OVC support</td>
<td>28.6</td>
<td>3%</td>
</tr>
<tr>
<td>Programme support</td>
<td>28.6</td>
<td>8%</td>
</tr>
<tr>
<td>Human resources</td>
<td>23.4</td>
<td>4%</td>
</tr>
<tr>
<td>Enabling environment</td>
<td>4.3</td>
<td>1%</td>
</tr>
<tr>
<td>HIV/AIDS research</td>
<td>1.3</td>
<td>0%</td>
</tr>
<tr>
<td>Total millions of US$</td>
<td>347</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>169%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Uganda National AIDS Spending Assessment (2011)

Since it started, development partners have committed $85 million to the fund, which has played a pivotal role in streamlining the national civil society response to HIV/AIDS and OVC, in harmony with national plans and policies. Funding priorities are locally determined and resources are allocated accordingly. In addition to the CSF, the bilateral donors above have pooled resources together with the UAC to provide funds to support
the coordination of the HIV/AIDS response. This funds the activities of the AIDS Partnership Committee that oversees the activities of a number of self-coordinating entities, such as research, media, arts, national non-government organisations (NGOS), People Living with HIV/AIDS (PLWHA) and so forth. In addition, this committee provides an oversight role for the aforementioned CSF.

Very little is known about the process of priority-setting for HIV/AIDS, specifically in Uganda. Much of what is known presently can be inferred from the reports of the National Strategic Plans and the National Strategic Frameworks developed by the UAC (UAC 2008). Briefly, what can be surmised from these reports is as follows. Efforts have been made since 1993 to include non-health sector stakeholders in the priority-setting process, with more than 1,000 stakeholders involved. As alluded to above, this arose from the recognition that the effects of HIV/AIDS in Uganda were far-reaching—beyond the confines of the health sector. These stakeholders have been identified as members of line ministries (Ministry of Gender, Labour and Social Development; Ministry of Finance and Economic Development and MOH), ADPs, members of civil society, representatives of PLWHA, the armed forces, MARPs and academia. Stakeholder consultations are also conducted at regional and district levels to ensure the legitimacy of policy decisions in regard to the following areas:

- that the process is led by the UAC as the entity that carries the mandate of stewardship of the response to HIV/AIDS and formulation of policy
- that the technical component of the priority-setting process is conducted in four phases, including documentation of the evidence by technical working groups, district consultations, drafting of the NSP and modelling and costing of implementation of the selected interventions; the costing component is completed by an external consultant (Futures Group)
- that both components of the priority-setting process are conducted with the help of working groups created to oversee work in all thematic areas identified
- That some of the guiding principles and goals include increased equitable access to services, increased efficiency, decreased incidence of AIDS/HIV and improved sexual behaviour.
Even though equity is an expressed goal, it is unclear what notion of equity is guiding decision-making and which inequalities are to be addressed. In addition, mention of efficiency is made, but it is unclear what exactly is being maximised and what decision rules are being used. The relative importance of each of these principles, as well as others, in the selection of the interventions is not articulated. The disadvantage of this is that there is likely to be little transparency in decision-making and no clear indication of what criteria are being used to adjudicate the worth of each intervention. It is also unclear how issues such as equity and efficiency are balanced against the wider objectives of decision-makers and politicians, such as feasibility and acceptability with constituents.

In addition, even though efforts have been made to include a number of stakeholders, it is unclear whether all who should participate in the priority-setting process actually do participate. In addition, the extent to which they participate and whether or not their contributions are ever included meaningfully in decisions is unclear. Appendix 1 of this thesis further describes the current priority-setting process for HIV/AIDS in Uganda, based on the empirical work undertaken as part of this thesis.

1.5. Concluding Remarks

The above discussion has highlighted the following points:

- Uganda has grappled with a HIV epidemic for decades, and the trends in the prevalence and number of new infections show that a reinvigoration of prevention efforts is required.

- It is of particular concern that MARPs have been largely ignored by the interventions implemented. The recognition of their involvement in decision-making, as well as inclusion of effective interventions for MARPs in the response, are important for the success of the response to the epidemic.

- The emphasis of prevention strategies—such as abstinence only and the use of condoms—for high-risk groups bases the response on interventions that have been shown to have no significant effect on HIV/AIDS. It also ignores the fact that the
highest increase in HIV/AIDS is currently in mutually monogamous couples in which one of the partners is infected.

- Funding allocations are currently largely misaligned to national priorities, which is an issue stemming from the poor engagement of ADPs, who are the largest sources of funds and tend to follow their own priorities.

One of the recommendations regarding the epidemic suggests a review of resource allocation for HIV, in addition to mobilisation of more resources to fund the epidemic. It is thus necessary to not only understand further the current priority-setting processes for HIV/AIDS, but also to understand what decision-makers consider important for priority-setting. In addition, it is important to know what can be learnt from theory and empirical experience to improve resource allocation for HIV.
Chapter 2: Research Question, Thesis Layout and Definitions

2.1 Introduction

Chapter 1 established the need for explicit priority-setting, while Chapter 2 described the background and rationale for this study. It has been established that not much is known about the priority-setting process for HIV/AIDS in Uganda, and that, at best, the process is *ad hoc* and has resulted in a sub-optimal response that is not aligned to the epidemic. In addition, in some cases, the response is not based on the best available evidence.

In light of this, this thesis sought to develop and trial the ‘ideal’ approach to priority-setting for HIV prevention among adults in Uganda. The focus was on HIV prevention as an illustrative area because of the effect that HIV/AIDS has on the country, as shown in Chapter 2. It should be noted that the Government of Uganda and the global health arena recognises the effect that HIV/AIDS has on the development of the country. HIV prevention has consequently been made a priority in the National Development Plan 2010 to 2015, and the commitment to halting and reversing the HIV/AIDS epidemic is half enshrined in the Millennium Development Goals. Thus, the question answered in this thesis was:

*What constitutes an ideal approach to priority-setting for HIV prevention for adults in Uganda?*

To answer this question, the conceptual framework for improving priority-setting in LICs by Kapiriri and Martin (2007) was used. The components of this framework include:

- **Capturing the priority-setting practice in that context**: Kapiriri and Martin (2007) argue that improving priority-setting requires a platform of continuous learning that captures how priorities are actually made. Such a platform would require a description of the key contextual factors (such as the social, economic and political factors) of relevance to priority-setting, the people or institutions involved in priority-setting, the criteria or values used in decision-making, the evidence used and the priority-setting process.
- **Developing the legitimacy and capacity of priority-setting institutions:** Kapiriri and Martin (2007) argue that this involves including legitimate decision-makers (those who have the moral authority) who will make decisions based on local values. This also involves development of the capacity to demand, synthesise and use the evidence.

- **Developing fair and transparent processes of priority-setting:** This is based on the four criteria of the accountability for reasonableness framework developed by Sabin and Daniels and further discussed in Chapters 4 and 6 of this thesis.

Based on this framework, any effort to develop an ideal approach to priority-setting for any context requires the description of what the current priority-setting approaches are in that context; evaluating them to determine areas of strengths and weakness; and lastly developing an improved priority-setting approach that is better suited to the context, is fair and transparent.

In order to do this, the important things to consider were:

1) how the current priority-setting process for HIV/AIDS in Uganda looks, in order to determine the strengths and weaknesses

2) determine how to evaluate the ideal priority-setting process for HIV/AIDS in Uganda

3) How to develop a priority-setting approach for HIV/AIDS.

Based on the conceptual framework described above the objectives for the study were therefore:

1) To describe the priority-setting context, processes and evolution with respect to HIV prevention in Uganda

2) To determine the theoretical and stakeholders’ most critical criteria required by a strong priority-setting process for HIV/AIDS.

3) To evaluate the performance of existing priority-setting approaches based on the critical criteria identified

4) To propose and evaluate an approach for priority-setting for HIV prevention
Objective 1 was specifically aimed at capturing the priority-setting process, while Objectives 2, 3 and 4 were aimed at the latter two components of the framework.

2.2 Definitions Used in this Thesis

Before the results of this thesis are presented, it is important to define the key terms that are used throughout the thesis. These are as follows.

**Priority-setting**: The process of choosing and allocating scarce resources between competing alternatives of healthcare services or programmes for a population or a health need (Lasry, Richter & Lutscher 2009; Tragakes & Vienonen 1998). The terms ‘priority-setting’ and ‘resource allocation’ are used interchangeably in the proposal, consistent with what occurs in most priority-setting literature.

**Priority-setting ‘approach’**: In this thesis, a priority-setting approach refers to a systematic manner of priority-setting, as opposed to an ad hoc process.

**Priority-setting tool**: In this thesis, a priority-setting tool refers to the technical analytic methods that provide information for priority-setting. These might include the Lives Saved Tool and Spectrum models for cost-effectiveness analysis (CEA).

**Most at-risk populations**: According to UNAIDS, the populations most at risk of becoming infected with HIV include injection drug users, sex workers and their clients, MSM and prisoners. MARPs are considered at risk for HIV due to behaviours and practices that heighten their vulnerability to the virus.

**Commercial sex workers**: These are people who engage in sexual activities in exchange for money.

**Men who have sex with men**: These are men who engage in sexual activities with other men, including men who have sex with both men and women.
PART B: LITERATURE REVIEW
Chapter 3: Issues in Priority-setting

3.1. Introduction

Chapter 1 explained why priority-setting is inevitable. Given this reality, a number of countries have engaged in priority-setting exercises. The visibility of these initiatives has raised a number of issues that are important to acknowledge and address. The key issues identified in the literature (Carter 2001; Carter et al. 2008a; Ham 1997; Hunter 1995a; Tragakes & Vienonen 1998) are:

- Should priority-setting be explicit or implicit?
- At what level of decision-making should priority-setting occur?
- What is the most important focus—technical/substantive principles or due process?
- Who should be involved in priority-setting?
- What values should guide priority-setting?

These issues are explored in Sections 3.2 to 3.6, and their implications for priority-setting in a country such as Uganda are examined Section 3.7.

In addition, it should be noted that, due to the increasing interest in priority-setting, there is a growing need to determine how this can be ‘ideally’ achieved. To this end, a number of checklists have been developed. These checklists are discussed in Section 3.8 with the aim of evaluating their suitability for assessing priority-setting in LICs.

3.2. Should Priority-setting be Explicit or Implicit?

It is crucial at this point to distinguish what is meant by ‘implicit’ and ‘explicit’ priority-setting. Coast (1997) defines implicit priority-setting of healthcare as occurring when “care is limited and neither the decisions about which forms of care are provided nor the bases for those decisions are clearly expressed”. In contrast, explicit rationing is said to occur when “decisions about the provision of healthcare are clear and visible, as are the
reasons for those decisions”. Others such as Klein (1993) consider implicit rationing as “rationing of healthcare by exclusion of services from health packages”. The definition by Coast (ibid) is adopted for the discussion in this thesis. The need for priority-setting to be explicit was prompted *inter alia* by the understanding that healthcare needs are infinite, while resources are finite. Hunter (1995) notes that the reforms to curb growth in health expenditure, such as the purchaser–provider split in the UK, have necessitated that priority-setting become explicit. However, there are debates in the literature regarding whether priority-setting should be explicit or implicit.

Mechanic (1992) argues that while explicit constraints are necessary to constrain expenditure on health, there is a danger that explicit priority-setting might result in insensitivity to changes in medical knowledge, the uncertainties that are inherent in healthcare, and the heterogeneity that exists in patients. Hunter (1995) agrees with this stance and notes that ‘an effective healthcare system must take into account the need for a flexible clinical response to numerous circumstances that may have not been planned for’. While Mechanic (1992) agrees that there is a need for more visible or explicit approaches to priority-setting, he calls for caution because ‘while seductive, explicit priority-setting can be prone to mischief’. He thus calls for ‘muddling through elegantly’. Specifically, he notes that explicit priority-setting should be confined to the strategic or macro level of priority-setting (discussed in Section 3.8.2), while implicit priority-setting should apply at the micro level (see Section 3.2.4)—a stance to which Hunter (1995) also subscribes.

However, implicit priority-setting has been criticised by some as providing excuses for politicians to avoid the responsibility of difficult decisions that need to be made (Ham & Coulter 2001). Those who call for explicit priority-setting believe that it increases openness and transparency (Coast, Donovan & Frankel 1996; Daniels 2000a; Daniels & Sabin 2008; Ham 1995, 1997; Ham & Coulter 2001). It focuses on using principles, norms and values that are agreed on by participants to guide the decisions and the processes by which the decisions are reached in a bid to establish the legitimacy and acceptability of decisions. It is also assumed that explicit rationing will result in efficient and equitable
healthcare systems (Maynard 1996; Nord 1999a). As Carter (2001) notes, these advocates are predominantly economists.

Explicit priority-setting has been said to be impractical, especially because of the difficulty of devising rational schemes and the sustainability of implementing these schemes. Thus, whether priority-setting should be explicit is an empirical, rather than theoretical, issue (Coast 1997). The empirical evidence for this is equivocal. While there is evidence to suggest that the public would like to know whether their care is being rationed, and if so why, and would prefer for an appeal process to be in place (Coast 2008), others demonstrate the unsustainable nature of implementing rational schemes, as seen in the health funds in the UK that relaxed their exclusions on medical treatments (Redmayne, Klein & Day 1993).

Ham and Coulter (2001) suggest a new synthesis in which both forms of priority-setting have a role to play in the healthcare system. An example of this is in Israel, where an explicit approach to the determination of the contents of the healthcare package was complemented by an implicit approach to imposing limits (Israeli & Chinitz 2003). McPake et al. (2012) also argue that, in all health systems, the two forms of priority-setting occur. They argue that, in reality, supply pattern priority-setting (explicit) is usually complemented by measures of implicit priority-setting, such as gatekeeping, queues, user fees and waiting lines. Thus, it appears that both forms of priority-setting have a complementary role to play, which is determined primarily by the level of decision-making.

There is growing recognition of the need for priority-setting in LICs to be explicit (Baltussen 2006; Glassman et al. 2012; Kapiriri 2003). The argument for this is based on the fact that, in the LIC context, priority-setting is inevitable and the rationales that form the basis of priority-setting have to be made clear (Baltussen 2006). It is also argued that there is a need for transparency and fairness in the way scarce resources are distributed among increasing demand for healthcare services. In addition is the realisation that implicit and often *ad hoc* priority-setting processes perpetuate inefficiency and continue
to distort healthcare priorities so that they do not reflect what is required in the local context (Kapiriri 2012).

3.2.1. At what Level of Decision-Making should Priority-setting Occur?

Williams (2001) notes that health systems are inherently decentralised by virtue of their nature, although some systems have been decentralised as part of larger systemic reforms. The level of decentralisation, and hence the devolution of decision-making power, varies and has implications for the priority-setting process. This is an issue that is critical to recognise when seeking to influence priority-setting for health. Klein (1993), notes that there are five levels of decision-making, while Carter (2001) notes only three, as shown in the table below. More recently, a new level called the ‘mega level’ has been added in the literature to reflect the priority-setting experience at the global or supra-national level (Martin 2009). The nomenclature by Martin (2009), as shown in Table 4.1, was adopted in this thesis.

<table>
<thead>
<tr>
<th>Classification of Levels of Priority-setting</th>
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<tbody>
<tr>
<td>Klein (1993)</td>
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<tr>
<td>The level of funding to be allocated to health services</td>
</tr>
<tr>
<td>The distribution of the budget between geographical areas and services</td>
</tr>
<tr>
<td>The allocation of resources to particular forms of treatment</td>
</tr>
<tr>
<td>The choice of which patients should receive access to treatments</td>
</tr>
<tr>
<td>Decisions regarding how much to spend on individual patients</td>
</tr>
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</table>

3.2.1.1. The Mega Level

This level of priority-setting is preoccupied with decision-making and priority-setting in regard to:

- Issues such as global security, education and other factors that are competing with health for funds that have been raised at the global level
Global health priorities that are noted to be causes of morbidity and mortality

Different geographical regions of the world and individual countries.

The earliest traces of priority-setting at this level involved global institutions such as UNICEF and WHO, as evidenced by the Primary Health Care and Selective Primary Health Care initiatives proposed for implementation in LICs that must meet the vast needs of their citizens with significant resource constraints (Okuonzi 2009). Priority-setting has since become an issue of importance in the global health landscape, due to huge geographical inequalities in the distribution of wealth, disease and research geared towards combatting these diseases.

Other reasons that have put priority-setting on the agenda at the mega level include the inordinate amount of money that has been raised for HIV/AIDS through Donor Aid for Health and domestically compared to other diseases that are bigger contributors to the BOD and mortality, and would require fewer resources to make headway (England 2007a; Glassman et al. 2012). This is especially so in light of the recent economic downturn, as seen in the debate series here (Over et al. 2012). Another reason is the proliferation of the Global Health Initiatives (GHI), such as the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GFATM); the Global Alliance for Vaccines Initiative (GAVI) and UNAIDS, who—because of their funding modalities—have resulted in fragmentation of health systems and duplication of priorities and resource use in LICs (England 2007b; England 2008).

Initially, priority-setting at the mega level was characteristically ‘top-down’, as priorities were developed by United Nations agencies for adoption and implemented by LICs. However, as was the case in Uganda and the WHO/UNICEF Primary Health Care initiative, these proved impractical due to the lack of resources and lack of implementing modalities (Okuonzi 2009). Following this came the era of ‘target setting’ by United Nations agencies, with targets such as:

- ‘Health for All by the year 2000’ (World Health Organization 1981)
- ‘WHO’s 3 by 5’, which stipulated that three million people would access ART by 2005 (World Health Organization 2005)
more recently, the Millennium Development Goals, which have three direct health-related goals, with the aim of halving morbidity and mortality due to the selected health priorities by 2015 (Dodd et al. 2005; Ungurean 2005). However, the problem with such priority-setting approaches is that lofty goals are usually set with little consideration of how they will be achieved, the resource requirements, and how the money will be mobilised, *inter alia* (England 2007b).

Previously, most of the priority-setting at this level was implicit—only the decisions were ever made explicit. The era of the early 1990s ushered in explicit, systematic approaches to priority-setting for health at this level (Rudan et al. 2010). The World Development Report in 1993 focused on investing in health for development (Musgrove 1993; World Bank 1993). One of the key features of this report was the need for countries, especially LICs, to adopt a minimum healthcare package determined using the Global BOD study (Gwatkin 1997; Mooney, Irwig & Leeder 1997; Schwartländer 1997). This is discussed further in Chapters 4 and 5.

Systematic priority-setting at this level is criticised by many in the literature (Mooney, Irwig & Leeder 1997; Mooney & Wiseman 2000; Paalman et al. 1998). These are explored more in chapter 3. Despite this, many LICs in SSA and Asia have used this approach to determine priorities for their healthcare systems (Bobadilla & Cowley 1995b; Bobadilla et al. 1994). Updates of the estimates of global BOD, injuries and risk factors and identification of cost-effective strategies to address them with the goal of informing health policy in LICs continue at this level (Jamison et al. 2006).

The institutions at this level that are key to priority-setting for HIV/AIDS include UNAIDS WHO and GFATM. They generally provide guidance on how different aspects of the HIV/AIDS response can be planned and implemented. More recently, UNAIDS has proposed an investment framework for HIV/AIDS. This framework, developed for improving management for HIV/AIDS programming and advocacy for resource mobilization purposes proposes that HIV/AIDS priority-setting should focus on:
Incorporating the following basic programming activities: Prevention-of-mother-to-child-transmission (PMTCT), condom promotion, programmes for key populations such as commercial sex workers, treatment care and support for people living with HIV/AIDS, male circumcision and behaviour change programmes. The idea is that each country should contextualize these activities to suit their epidemic.

- Harnessing the role of critical enablers such as political commitment and advocacy, legislation and programme enablers like programme communication and community centred design and delivery.

- Taking advantage of synergies between programme elements and development sectors.

The framework has been used as an advocacy tool for resource mobilization at the global level and has garnered much attention to funding for HIV/AIDS that would serve to increase resource flows for HIV/AIDS in the midst of economic downturn and other competing priorities such as non-communicable diseases.

It has also served to increase the focus on certain programme areas particularly on PMTCT and treatment for prevention in light of the likely efficiency gains and the benefits that would be realized from implementing these programmes. Lastly, it has been promoted in LICs as a blue print for determination of priorities for HIV/AIDS. Inspite of these important contributions, the framework does not negate the need for setting priorities at a local level because of the need to fit the priorities to the epidemic.

The issue of concern here is that, even though global priority-setting exercises intend to resolve issues of resource allocation for LICs, the endeavours thus far do not use locally adapted evidence on effectiveness and cost-effectiveness (Glassman et al. 2012). In addition, many times these exercises have ignored the contextual values that are inherent in different countries and that citizens consider important for priority-setting (Singer et al. 2000). For instance, in Uganda, Kapiriri, Norheim and Heggenhougen (2003) identified that stakeholders in the BOD process found that important issues such as gender balance and equity were ignored by the approach. This limited the acceptability and implementation of the priority-setting decisions.
In general, priority-setting at this level is important because it provides much-needed
guidance in LICs where systematic priority-setting is still in its infancy, and also because
of the level of funding mobilised at this level for LICs. However, despite the fact that it
has become more systematic and explicit, the lack of sensitivity to country-level values
and epidemiological variation makes a strong case for country- or context-specific
priority-setting approaches that incorporate local values and the needs of decision-makers

3.2.1.2. The Macro Level

The macro level is where decisions for the allocation of resources for the health sector are
made. Generally, priority-setting occurs between sectors, between diseases and between
geographical areas. In decentralised systems, this corresponds to the central level, where,
in most cases, the Ministry of Finance will set priorities across different sectors, such as
education, security, health and the like, which are subject to a budget ceiling. Resource
mobilisation for the entire health system also occurs at this level through tax for publicly
funded systems, complemented by external aid in LICs.

Priority-setting at this level varies between countries, which implies that no ‘one size fits
all’ approach can apply. For instance, Kapiriri, Norheim and Martin (2007) compare
priority-setting at different levels in the decentralised countries of Norway, Canada and
Uganda. They show that in all three countries, the manner in which decisions are made
differs greatly. For instance, in Canada, there is no national level priority-setting process,
with most decisions devolved to the provincial governments. In Norway, priority-setting
at this level characteristically has two parallel processes for neglected and non-neglected
priorities determined by the central government and the regional health authorities. In
Uganda, parallel priority-setting processes exist, not only for different diseases, but also
because of the existence of state and non-state actors (ADPs) in the system-wide priority-
setting process (see Appendix 1).
Related to this is the distinction between vertical and horizontal priority-setting. Horizontal priority-setting refers to the allocation of resources between different diseases, services or sectors. Vertical priority-setting refers to the allocation of resources between treatments for the same disease (Ham 1997). In LICs, vertical priority-setting has become increasingly prevalent in recent years, both at the mega and macro levels, because of the manner in which healthcare is funded (Zikusooka et al. 2009). Healthcare is funded mainly by donors for particular ‘priority diseases’, such as vaccine-preventable diseases, HIV/AIDS, tuberculosis and malaria. Due to the presence of these funding silos, priority-setting has necessarily become vertical, with priority interventions being selected within separate priority-setting processes for specific diseases.

Thus, it is imperative for the ideal priority-setting approach informing priority-setting at this level to be cognisant of the influence of the healthcare financing landscape and the influence of the multiplicity of actors in the priority-setting process at this level.

3.2.1.3. The Meso Level

Decision-makers at this level (who mainly consist of hospital managers and other bureaucrats) are faced with tough choices that are compounded by competing interests, such as clinical versus budgetary, local versus systemic and strategic versus operational interests (Martin 2009). These decisions are passed on from the macro level by decision-makers who are reluctant to take the blame for unpopular decisions.

Kapiriri, Norheim and Martin (2007) show that priority-setting at this level in Uganda, Norway and Canada involves departmental heads who are supposed to consult frontline physicians for their priorities to draw up their priority lists, which are submitted to hospital managers, where they are collated and submitted to Cabinet through the MOH. Lower level consultations do not always take place and the decision-making process is largely implicit. In Uganda and other LICs, this includes the District Administrative Committees (Dereck et al. 2011; Kapiriri & Norheim 2002; Kapiriri, Norheim & Heggenhougen 2003a).
Various approaches have been proposed for use at this level, including:

- the programme budgeting and marginal analysis (PBMA) approach that has been used for priority-setting in Canadian regional health authorities, in the UK and in Australia at the regional level (Grocott 2009; Haas et al. 2001; Mitton & Donaldson 2001; Mitton & Donaldson 2003).
- the assessing cost-effectiveness (ACE) approach (Carter 2007; Carter et al. 2008a; Vos et al. 2005)
- The accountability for reasonableness framework (Daniels 2000a; Jansson 2007; Maluka et al. 2010; Mshana et al. 2007).

These have been used with success in informing policy on which priorities to fund.

In LICs, systematic priority-setting has been attempted at this level using technical approaches such as the BOD study (Bobadilla & Cowley 1995c). However, the experience of using this approach indicated that the effort had to be abandoned due to lack of data. It is unlikely that the data limitations that undermined this effort in the 1990s have been overcome to the extent that systematic priority-setting using technical approaches can be conducted at this level. It is important to note that the criteria that may be used by decision-makers at this level may differ from what has been prescribed (Gibson, Martin & Singer 2004; Kapiriri, Norheim & Heggenhougen 2003b; Martin & Singer 2000; Russell et al. 1996). This brings to the fore the issues of stakeholder engagement in priority-setting and consensus building.

3.2.1.4. The Micro Level

This is arguably the most contentious level of priority-setting. The challenges here are mainly with respect to distributing limited hospital beds, theatre time and (in LICs) physician time. The issue is that, more often than not, clinicians—who are neither trained nor inclined to be aware of resource allocation decisions—are forced to grapple with who should receive care and to what extent. The issue that has been raised by many is that leaving these decisions to the discretion of physicians will result in higher expenditure.
This is because—as has been demonstrated in an intensive care setting (Cooper et al. 2005) and for elective cardiac surgery (Walton et al. 2007)—clinicians have different reasons for prioritising different patients, such as age, need, the capacity to benefit and (in some cases) the physicians’ ability to agitate for a hospital bed.

The types of rationing at this level include the gatekeeping role of physicians in curbing unnecessary or excessive expenditure, as seen in the funds in the UK and the managed care setting in the United States (US). Others include the use of waiting lists for surgical procedures, as well as the user fees that are used in countries such as Australia and, until recently, in LICs such as Uganda (McPake, Normand & Smith 2012). In Uganda, as elsewhere, physicians are the major players at this level. Kapiriri et al. (2007) found that physicians tend to allocate resources based on whether there is an emergent need. In addition, clinicians have different reasons for prioritising different patients, including age, need, the capacity to benefit and (in some cases) physicians’ ability to agitate for a hospital bed. In addition, other factors such as distance from the hospital, availability of drugs and nepotism can have an influence.

Mooney (2000) contends that if the goal of priority-setting is to contain expenditure, this is the level at which explicit approaches with regard for cost-effectiveness should be applied. However, as has been demonstrated above, others argue that explicit approaches to priority-setting at this level—particularly ones that are rules based—might interfere with the relationship between the physician and patient, and might be insensitive to the homogeneity of patients’ characteristics and the uncertainties in medical care (Hunter 1995a; Hunter 1995b). They hold that rationing at this level should largely be implicit, but should be managed within explicit constraints made at the macro and meso levels.

In general, it is clear that all four levels of decision-making are relevant in priority-setting. What is also clear is that different approaches work best at different levels—that is, more explicit approaches work best at the higher levels (mega, macro and meso), while implicit approaches tend to operate better at the micro level.
3.2.2. What is the Most Important Focus—Technical/Substantive Principles or Due Process?

This is arguably the most contentious issue in explicit priority-setting. The issues that are present here relate to what form these approaches should take and at which level of priority-setting they can be applied. The technical approach to priority-setting relies on decision rules, substantive principles and the use of evidence and datasets to guide priority-setting. The understanding here is that once objectives are set and the principles and methods are agreed on by all stakeholders, the decisions that result from the priority-setting process guided by such principles are legitimate. These principles tend to be drawn from economics and its concern for efficiency, epidemiology and need, and from ethics and its concern for equity and social justice (Carter 2001).

In contrast, the focus on due process by some is based on the fact that it is impossible to reconcile competing values, and thus the focus should be on ensuring strong institutions (Rudolf Klein & Williams 2001) where fair and transparent debate on priorities can be conducted in order to reach solutions that are just and legitimate (Daniels 2000a; Daniels & Sabin 2008). Klein and Williams’s (2001) debate typifies the rationales and tensions underlying this particular issue. Williams argues that improving the information base is the key to priority-setting. He argues that the lack of quality information and reluctance of decision-makers to use the information are constraining priority-setting. While he acknowledges the current inadequacies in the measurement of priority-setting outcomes, such as health, he notes that the focus should be on improving the information base, rather than strengthening the priority-setting institutions.

In contrast, Klein feels that priority-setting is a political process and that, subsequently, strengthening priority-setting institutions, rather than appealing to science, is what is required. In doing so, he is sympathetic to the case that Holm (1998) describes arising out of the empirical experience of the Nordic countries. Holm demonstrates that the priority-setting process in these countries underwent two phases. The first phase focused mainly on substantive principles to decide how resources were allocated. However, due to the
failure of decision-makers to implement these approaches and guidelines, a second phase ensued, consisting of a focus on the right processes and institutions that would yield legitimate decisions. The experience in Nordic countries is not the only one to indicate that a focus on technical principles alone is not enough—the priority-setting experience in Oregon demonstrates this as well, as is further discussed in Chapter 5 (Hadorn 1991a, 1996b).

Similarly, after reviewing the priority-setting efforts of five countries, based purely on substantive principles, Sabik and Lie (2008b), among others, note the poor uptake of economic evaluation in priority-setting. In addition, despite the attempt to systematise priority-setting in LICs, the uptake in terms of influence on policy has been minimal (Glassman et al. 2012; Youngkong, Kapiriri & Baltussen 2009). This is chiefly because the decision rules adopted in these approaches do not adequately capture the values and broader issues inherent in these contexts that are of importance to decision-makers.

Hauck, Goddard and Smith (2003) note that this is due to methodological constraints, such as the lack of good data, and practical constraints, such as the fact that, in most cases, the wider policy objectives—such as equity implications and feasibility of interventions—tend to be ignored by economic evaluations. Sugden and Williams (1978), as well as others in the literature, agree and argue that an approach is required in which economic evaluation is regarded an aid to decision-making and in which objectives other than efficiency (such as equity and acceptability) are incorporated (Carter et al. 2008a; Drummond, Sculpher & Torrance 2005; Lasry, Richter & Lutscher 2009; Robinson 1999; Sugden & Williams 1978). One such approach is the decision-making approach (DMA) (Sugden & Williams 1978), which makes up for the shortcomings of the traditional economic evaluation approaches that ignore the broader objectives of policymakers.

However, technical analyses such as economic evaluation have been embraced by some jurisdictions to guide policy setting, such as the NICE in the UK (Bryan, Williams & McIver 2007; Walker, Palmer & Sculpher 2007), the Pharmaceutical Benefits Advisory
Committee (PBAC) in Australia (PBAC 2008) and the WHO (Edejer 2003). However, this occurs within a broader process of consultation akin to the DMA above.

The emphasis on process, rather than substantive principles, recognizes the need for fair deliberation and fair decisions. One approach that has received widespread recognition and been widely implemented is the ‘accountability for reasonableness’ approach (Daniels 2000a; Daniels & Sabin 2008). This approach provides four conditions that a priority-setting process should fulfill to ensure accountability for reasonableness, as detailed in Section 3.8. The approach is theory based and has been implemented in Canada (Gibson, Martin & Singer 2004; Martin, Singer & Bernstein 2003; Mielke, Martin & Singer 2003); in LICs such as Tanzania (Maluka et al. 2011; Maluka et al. 2010), where it has been used to guide priority-setting; in Uganda (Kapiriri & Martin 2006; Kapiriri, Norheim & Martin 2009), where it has been used to evaluate the priority-setting process; and at the mega level (Daniels 2005). Even though the experiences in Canada were reported as successful, the implementation of accountability for reasonableness in Tanzania—as an approach both guiding and evaluating priority-setting—are telling (Maluka et al. 2011). Maluka et al. (2011) note that implementing the appeals condition was particularly challenging because of lack of public awareness and lack of willingness on behalf of healthcare workers to participate in providing feedback. In addition, not all stakeholders were involved in the process. Further discussion of this framework is found in Chapter 5.

The recognition of the need for fair and open processes in priority-setting can also be seen at the mega level. While priority-setting has become more explicit at this level during the past two decades, the focus has been mainly on the technical approach to priority-setting. However, there is growing recognition of the need to build up stronger institutional frameworks that can support priority-setting debates at this and lower levels of decision-making (Glassman & Chalkidou 2012; Glassman et al. 2012).

Drawing from the international experience on priority-setting, Ham and Coulter (2001) conclude that the dichotomy over the two issues in the literature does not reflect the reality of priority-setting. They contend that for successful priority-setting, what is required is a
strengthened information base and a strong institutional framework in which these decisions are made. This is echoed by others (including this author) who see priority-setting as requiring both, rather than one with the exclusion of the other (Carter 2001; Sabik & Lie 2008a). In time, priority-setting processes that have ignored this dichotomy and used substantive principles in processes that are based on fairness have been successful in affecting policy and resource allocation decisions. These approaches are expounded in Chapter 10 of this thesis. They include the ACE approach used to inform cancer and obesity, mental health priorities and priorities for the prevention of non-communicable diseases in Australia (Carter 2001, 2007; Carter et al. 2009; Carter et al. 2008a; Vos et al. 2010; Vos et al. 2005); the PBMA approach used in Canada and Australia to inform priority-setting (Carter et al. 2000; Mitton & Donaldson 2003); and multi-criteria decision analysis (MCDA) (Baltussen et al. 2006b; Baltussen et al. 2010).

Given that this debate has been resolved in the recent literature, the issues that necessarily arise include who should be involved in the priority-setting process and what values then should guide priority-setting. These two issues are explored further below in Section 3.5.

### 3.2.3. Who should be Involved in Priority-setting?

This is a context-specific issue. In developed countries, the issue centres mainly on the legitimacy and manner of involvement of the public and how they should be involved in the priority-setting process, especially with regard to the presence of experts or professionals in this area. However, on the other side of the divide, while the feasibility and legitimacy of involving the public is an issue, of even greater significance for LICs is the involvement of ADPs.

The issue of involvement of the public is perceived to be a prerequisite for the legitimacy of priority-setting decisions, as well as for ensuring public accountability. Abelson (2003) notes that the complexity of priority-setting requires a citizenry that is well informed, has weighed the evidence, has considered all possible decision options and has finally mutually agreed on ways forwards. However, others note that the involvement of the
public raises the issue of ‘denial disutility’—the disutility experienced by members of the public who deny care to others because of resource scarcity (Coast 1997). Issues of legitimacy regarding involvement of the public in priority-setting stem from concerns about the representativeness of those participating and the perceived lack of knowledge of laypeople in an area populated by professionals. In addition is the risk of populism and, at least in the UK, concern that their involvement is meant to make up for a gap in the democratic process, as members of health authorities are appointed and not elected (Ham C & Coulter A 2000).

The literature is rife with debate on the involvement of the public in priority-setting, given the need for transparency and for understanding the wider preferences of the community. The issue was first embraced by New Zealand in the determination of their core services, as well as in Oregon in the attempt to increase coverage for the elderly under Medicaid, through investment in more cost-effective interventions (Ham C & Coulter A 2000). These experiences and others in the literature have raised questions such as:

- How should the public be involved in priority-setting? Models of involvement include: “direct representation” whereby representatives from the target population are included in the priority-setting process; “ad hoc public consultation” where individuals are called on to participate when the need arises and; the ‘institutionalised model’, such as the Citizen’s Council in the UK. The key issues here are defining what tasks participants will contribute to on an ongoing basis, and what structures or methods will guide their involvement (Abelson et al. 2007).

- There is a spectrum of level of participation of the public (Feingold 1977). Citizen participation may be restricted to education on some issues (the lowest rung of the participation ladder); consultation on some issues by policymakers, such as in consumer satisfaction surveys, inter alia (the second level of the ladder); and sharing of decision-making responsibility between policymakers, experts and the participating members of the public. The first two levels of participation are the most common forms of participation due to imbalances in the possession of
knowledge (given the highly technical nature of the knowledge) and in interests (Church et al. 2002).

- Another issue of importance is the manner in which the public’s views are elicited. Common elicitation methods include simple techniques such as simple trade-off and the visual analogue scale, and more complex techniques such as paired comparison and discrete choice experiments (DCE) (Müllen 1999). These methods are constrained by the validity of the results, the comprehension of the participants and the participants’ value systems (Müllen 1999). It is thus essential to ensure a balance between the appropriateness of the technique with regard to the problem to which it is applied, the ease of application and whether the aggregation method is appropriate to the situation.

Interest in public involvement in priority-setting in LICs such as Uganda is in its infancy. In Uganda, public participation is low and will require a lot of effort to improve (Kapiriri, Norheim & Heggenhougen 2003a). This is because of structural factors such as poverty and economics, and cultural factors such as lack of knowledge, low motivation due to the perception that leaders do not really care, and lack of capacity, *inter alia*. These factors must be overcome in order to improve public participation in priority-setting in Uganda. A similar situation was noted by Maluka et al. (2010, 2011) in Tanzania. The extent to which the public are willing to be involved is an unexplored issue, as is the nature of the decisions they are willing to make and the manner in which they should be engaged. The rapid rural appraisal method\(^5\) has been used to engage the public in SSA in areas such as health, nutrition, emergencies and disasters, non-formal and education with success, and could serve as a starting point.

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\(^5\) Rapid rural appraisal is a method that has been used in rural development to obtain information for decision-making. It uses cost-effective research designs that allow quick data collection and evidence that can be used by policymakers. It can include interviews with individuals, households and key informants; reviews of the literature; triangulation of information from different sources; methods of collecting quantitative data in a short time; and others. Variants of rapid rural appraisal, such as participatory rural appraisal, have also been used. These tend to be more inclusive and participatory than rapid rural appraisal.
The legitimacy and nature of the involvement of non-state actors in priority-setting in LICs is another issue of contention. Unlike the developed world, the role of non-state actors in priority-setting generally, and for health and HIV/AIDS specifically, is large. At the mega level, non-state actors (donors and ADPs) include the Bretton Woods institutions; United Nations agencies; the World Bank; the International Monetary Fund; GHI such as GFATM and GAVI; and other institutions such as the Clinton Health Access Initiative. Over time, policies and priorities set by these actors at this level have become increasingly influential on the manner in which priorities are set in LICs, such as via the Primary Health Care initiative by WHO mentioned in Section 3.3.1.

At the mega level, there is hardly any involvement of the country-level actors. The main actors are the ADPs, technocrats and large pharmaceuticals, as well as a huge number of interest groups consisting mainly of civil society organisations. The priority-setting decisions usually reflect the interests of the groups and companies with the most influence in a setting in which institutional mechanisms are still weak, especially with regard to effective deliberation for priority-setting at this level (Glassman et al. 2012).

At the macro level, the Sector Wide Approach (SWAp) is the mechanism of engagement in which donors and state actors are meant to engage (Peters & Chao 1998). In this approach, the priority-setting process is supposed to be country-led, with wide stakeholder engagement and consultation to encourage legitimacy and country ownership of the priorities. However, their involvement has been characterised by imposition of values that do not reflect local values. This stems from the lack of priority-setting institutions to guide the engagement of the donors (Kapiriri 2012), poor governance, and LICs having little negotiating power (Okuonzi 2009). Their involvement is also uncoordinated and results in parallel priority-setting processes, (outside the SWAp framework), duplication of priorities and subsequent weakening of health systems (England 2007b).

Glassman et al. (2012) propose the development of institutions for priority-setting with the necessary legal, statutory and political backing to oversee all phases and aspects of priority-setting. Together with these, they propose a set of rules of engagement for ADPs,
ranging from development of a global accreditation centre on health technology assessment and priority-setting and capacity building at the local level, through to participation in country-led priority-setting. This newly emerging approach to engaging ADPs at the country level has been tried by some GHI, such as GAVI, with success in the countries where it has been implemented.

3.2.4. What Values should Guide Priority-setting?

The explicit priority-setting processes in Oregon, the Netherlands, New Zealand and so forth have revealed that priority-setting is not only value laden, but that these values are necessarily context specific. This is because they reflect the history, culture and political values in that context. In Oregon, the values that guided the selection of priorities were grouped into three attributes: value to the society, value to individuals at risk of needing the service and being essential to basic healthcare (Ham 1997). These values included, but were not limited to, cost-effectiveness, equity at the society level, and ability to function, length of life at the individual level, quality of life, benefiting many, and cost-effectiveness for basic healthcare. As Chapter 5 shows, in New Zealand and the Netherlands, as well as other places, the values were necessarily different and some values were given primacy over others (Ham 1997). These experiences highlight the significance of values and indicate that the importance of these values to decision-makers differs.

Apart from the ordinal ranking of values, other techniques that have been used include the development of criteria weights, as is the practice in MCDA (Baltussen et al. 2006a; Baltussen et al. 2006b; Baltussen et al. 2010; Jehu-Appiah et al. 2008). Briefly, criteria for decision-making are determined by eliciting values and preferences from stakeholders, and these are weighted using weights determined by stakeholders. Many techniques, such as conjoint analysis, have been used to develop these weights to reflect the relative importance of the criteria/values. This technique is gaining wide use in both developed and developing countries.

Ordinal implies the order or the rank of things, such as first, second and third, while ‘cardinal’ implies the quantity or strength of importance.
Second-stage filters have also been used to reflect the relative importance of criteria for priority-setting. Carter (2001, 2007) and Carter et al. (2008, 2009) developed these to assess the cost-effectiveness of a number of priority-setting exercises in Australia. The filters are used in two stages. The first-stage filters include efficiency and effectiveness. Once the interventions under review have satisfied these criteria, they are reviewed in a second stage using a number of pre-selected criteria that are important and identified in the priority-setting process by stakeholders. These include equity, quality of the evidence, feasibility, sustainability, acceptability and strength of the evidence used.

Of the three methods described, the weighting of criteria provides greater rigour in assessing the interventions, and the rationales for selection are more explicit. However, they are more demanding on participants and Carter (2001) notes that steering committees prefer the simpler two-stage filter approach, rather than more complex weighting approaches.

### 3.3. Implications for the Ideal Approach to Priority-setting

The above discussion has shown that priority-setting is inevitable, yet the manner in which it is conducted is very much dependent on the context. As is evident above, the values, participants and methods vary with the decision context. The context may be a level of decision-making, level of economic development, type of disease or cultural context.

The discussion has shown that, for the ideal approach to priority-setting, the following issues are pivotal:

- Explicit priority-setting is desirable, at least at higher levels of decision-making, because it is likely to foster the transparency and legitimacy of decision-making. Its adoption need not preclude the use of complementary implicit approaches to priority-setting that can serve to decrease growth in healthcare expenditure.
- Priority-setting at the global level provides useful guidance, especially for LICs where systematic priority-setting is not yet fully entrenched, as in developed
countries. However, most decisions at this level have proven difficult to implement at the country level. This makes the case for country-level priority-setting.

- The relevance of locally relevant values in decision-making for fostering the legitimacy of decisions and ensuring institutionalisation of priority-setting processes is important. Thus, the ideal priority-setting approach should provide a mechanism for eliciting these values from decision-makers, and should desist from imposing values onto them.

- The level of decision-making will affect the conduct of the priority-setting process and the role of technical approaches. The literature shows that, thus far, technical approaches have been useful to different degrees in different contexts in informing the allocation of resources at the mega, macro and meso levels. This is more so in developed countries than in developing countries, but the practice is nevertheless growing.

- The institutionalisation of such approaches requires recognition of the need for due process, with particular regard to involving all stakeholders and reconciling differing viewpoints.

- Technical approaches have inherent values, such as efficiency and certain notions of equity. In addition, decision-makers have myriad other objectives that might conflict with those inherent in these technical approaches. Therefore, judgement regarding which objectives are most important when allocating resources is important. A number of approaches exist, such as weights and filters, and the ideal approach would adopt these based on what is feasible for that setting.

- The involvement of stakeholders, such as the public, is desirable, as was seen in the review above. However, many issues remain unresolved. Chief among these is the level of these stakeholders’ participation and the manner in which they should be involved. In LIC settings, the practice of involving the public has been restricted to methods such as rapid rural appraisals. The involvement of the public for systematic priority-setting would be costly, especially when using these methods, as well as methods such as surveys. It is reasonable to state, at this point, that less engaging mechanisms—such as direct representation or ad hoc consultation—may apply in this setting.
In addition, the ideal approach should also provide for engaging stakeholders such as the ADPs, who have their own agendas and values. Thus, it is important to have an explicit approach that identifies values common to all stakeholders and values that are relevant locally.

3.4. Evaluating Priority-Setting Approaches

One of the objectives of this thesis was to determine what the ideal approach to priority-setting should be. In response to the growing recognition of the need for explicit approaches to priority-setting, a number of checklists that assess the ideal approach to priority-setting have been developed and discussed in the literature. Some checklists focus more on the process of priority-setting (process oriented) while others provide insight into the effect of the explicit approaches to priority-setting on resource allocation decisions (effect-oriented).

3.4.1. Process-oriented Checklists

A few checklists of criteria for successful priority-setting have been developed. Segal et al. (2001) developed a checklist to assess priority-setting approaches. The basis for the checklist is mainly economic theory. This checklist is presented in Table 4.2 below.
Table 3.2: Segal and Chen’s Criteria for Successful Priority-setting

<table>
<thead>
<tr>
<th>Priority-setting model checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criterion 1: A decision rule is specified: The decision rule and process for setting priorities are specified. The most basic requirement is that resource scarcity is recognised and precise criteria for the reallocation of resources for making choices are enunciated.</td>
</tr>
<tr>
<td>Criterion 2: There is a logical relationship between the decision rule and community’s objective. This is achieved when:</td>
</tr>
<tr>
<td>• the research question and analysis are based on the societal perspective</td>
</tr>
<tr>
<td>• the selection of programmes and service options are comprehensive and precisely defined</td>
</tr>
<tr>
<td>• the objectives are well defined</td>
</tr>
<tr>
<td>• a marginal perspective is adopted</td>
</tr>
<tr>
<td>• There is rigour in measurement of the costs and benefits.</td>
</tr>
<tr>
<td>Criterion 3: There is capacity of implementation.</td>
</tr>
</tbody>
</table>

Source: (Segal & Chen 2001)

Due to the contribution of economic theory, this checklist includes important issues such as the specification of a decision rule, a mechanism for generating options and a regard for marginal analysis. It also includes the critical issue of capacity of implementation. Many explicit priority-setting processes are resource intensive with regard to time, human resources and finances (Glassman & Chalkidou 2012). Thus, the capacity to implement the approach should be assessed. This is likely to be important to LICs where, historically, the adoption of systematic priority-setting has been low. However, it is limited by the fact that it largely ignores the procedural issues that are important for ensuring legitimacy and fairness. This checklist is very much in keeping with the purely technical approach to priority-setting.

Carter et al. (2008) also developed a checklist for priority-setting. This checklist represents a concerted effort to reconcile ethics and economics theory with decision-makers’ concerns and the lessons gleaned from international empirical experience. This checklist addresses and expounds all the issues addressed by the checklist above. Compared to the checklist by Segal et al. (2001), this checklist includes issues raised from the theory on ethics, such as due process, as well as contribution from international experience and decision-makers’ needs. The checklist is very comprehensive, as shown in Table 4.3 below.
Consideration for the pragmatic does not come at the expense of technical rigour. This checklist is comprehensive in its assessment of the technical components and the appropriateness of the principles therein, as well as the assessment of the procedural components of the exercise. However, its shortcoming is that it provides no information with regard to the outcome of the priority-setting process. It also does not address the issue of operational efficiency of the priority-setting approach that Segal et al. (2001) include in their checklist. In addition, it does not include a provision for assessing the institutional structures and the level of commitment to the priority-setting process that emerged in the discussion above as important for priority-setting.

Peacock et al. (2010) also provide a checklist of guidelines for successful priority-setting, based on their experience of implementing PBMA in a number of settings. This checklist is similar to that by Carter et al. (2008). It recognises the need to assess the technical components of priority-setting, as well as the process itself. In addition, because of their empirical experience using PBMA, they incorporate the assessment of other structural components about which other checklists are silent. These include an assessment of organisational readiness and the role of leadership. Although the checklist is mainly a guideline for successfully implementing PBMA, the authors note that the principles can be effectively applied to any economic approach. This checklist is presented in Table 4.4 below.
Table 3.4: Peacock et al.’s Criteria for Successful Priority-setting

<table>
<thead>
<tr>
<th>Pragmatic guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish the organisational objectives</td>
</tr>
<tr>
<td>Ensure that there is organisational readiness</td>
</tr>
<tr>
<td>Establish an appropriate advisory panel structure</td>
</tr>
<tr>
<td>Ensure that the implementation of results is feasible</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technical guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define the study question</td>
</tr>
<tr>
<td>Choose the most appropriate programme structure</td>
</tr>
<tr>
<td>Choose an appropriate level of detail for a programme budget</td>
</tr>
<tr>
<td>Use appropriate methods to identify options for investment and disinvestment</td>
</tr>
<tr>
<td>Identify, measure and value costs and benefits of options of investment and disinvestment</td>
</tr>
<tr>
<td>Ensure that resource allocation decisions are robust and valid</td>
</tr>
</tbody>
</table>

Source: (Peacock et al. 2010b)

The three checklists above were developed under huge influence from the economic perspective. It is clear that the authors regard the concept of marginal analysis as crucial for priority-setting. Given this fact, non-economic approaches to priority-setting are likely to perform poorly against these checklists, irrespective of whether they have actually achieved the goal of priority-setting. Other process-oriented checklists that have been developed include the checklist by Franco Sassi that includes four criteria against which the success of the priority-setting process is measured. These criteria are shown in Table 4.5 below.

Table 3.5: Franco Sassi’s Criteria for Evaluating Priority-setting

<table>
<thead>
<tr>
<th>Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritisation methods should allow a comprehensive scanning of interventions and advance warning of undesirable effects.</td>
</tr>
<tr>
<td>An explicit rating of interventions should be provided. Accountability requires that the influences of political, professional and user groups, as well as the values of those who are responsible for the prioritisation, be made transparent during the prioritisation process.</td>
</tr>
<tr>
<td>The participation of all stakeholders should be facilitated.</td>
</tr>
<tr>
<td>Time and resource demands generated by prioritisation methods should be compatible with the budgetary constraints of the organisation undertaking the priority-setting exercise, proportionate to the amount of exercises at stake as a result of the implementation of the findings of the overall evaluation process.</td>
</tr>
</tbody>
</table>

In addition to Sassi’s own work, this checklist has not been used widely in the literature to evaluate priority-setting processes. While the first three criteria mirror the concerns of all the other checklists, he includes an important criterion concerning the implementation capacity of the approach.
The accountability for reasonableness framework by Daniels and Sabin is another process-oriented checklist, as was aforementioned in Section 3.4. It was developed mainly from theories of procedural justice, and has been widely adopted in many settings, as discussed above. It comprises of four components, as outlined in Table 3.6.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publicity</td>
<td>The decisions made by decision-makers and the rationales for these decisions should be accessible to the public and open to scrutiny not just from decision-makers, but also from all those who will be affected by them.</td>
</tr>
<tr>
<td>Relevance</td>
<td>Priority-setting decisions are made based on reasons that people—who (in principle) seek to cooperate with others on mutually justifiable terms—will agree are relevant and adequate.</td>
</tr>
<tr>
<td>Appeals</td>
<td>There should be an institutional mechanism that allows patients an opportunity to dispute and challenge decisions with which they do not agree.</td>
</tr>
<tr>
<td>Enforcement</td>
<td>There should be public or voluntary regulation that ensures the above three conditions are achieved.</td>
</tr>
</tbody>
</table>

Source: (Daniels 2000a)

This checklist raises the issue of enforcement, which is significant for LICs because of the multiplicity of important actors that each have differing levels of power, as well as the dangers noted with regard to distortion of national priorities. It also highlights that the principles that guide priority-setting cannot be determined \textit{a priori}—they are context specific. However, it is likely to assess approaches that are not as ideal, given the vague nature of the conditions. Just because an appeals mechanism exists does not mean that unfair decisions will be overturned. In addition, the lack of regard for the operational issues in priority-setting is a major limiting factor in the suitability of this checklist for LICs.

3.4.2. Effect/Outcomes-oriented Checklists

Sabik and Lie (2008b) evaluated the success of priority-setting exercises in eight regions: Norway, Sweden, the UK, Oregon, Netherlands, New Zealand, Denmark and Israel. In their evaluation, the authors used three broad criteria to evaluate success. These are shown in Table 4.7 below.
Table 3.7: Criteria Used by Sabik and Lie

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public input and</td>
<td>Solicit public input to inform health professionals and policymakers about the beliefs, opinions and preferences of the public. Promote public discussion that aims to educate the need and options for setting priorities.</td>
</tr>
<tr>
<td>discussion</td>
<td></td>
</tr>
<tr>
<td>Appropriate principles</td>
<td>Establish a coherent, specific and action-guiding set of publicly acceptable principles on which to base priorities, including a practically useful and balanced method for incorporating cost into the prioritisation process.</td>
</tr>
<tr>
<td>Effect on policy and</td>
<td>Exhibit a sustained effect on the policy and practice of healthcare priority-setting, including through the establishment of an iterative process for review, evaluation and reconsideration of priority-setting determinations.</td>
</tr>
<tr>
<td>practice</td>
<td></td>
</tr>
</tbody>
</table>

Source: Sabik and Lie (2008b)

This checklist raises the important issue of whether the priority-setting process achieves any influence on policy, which is the goal of priority-setting. In this regard, it is more suited to priority-setting after the fact, rather than to assess priority-setting approaches that are intended to guide priority-setting.

Similarly, Sibbald et al. (2010) developed a checklist through wide consultation with decision-makers, patients, caregivers and priority-setting experts. This checklist provides five ‘process’ criteria and five ‘outcome’ criteria to assess priority-setting. It was used to evaluate a priority-setting process in Ontario at the meso level. The findings of the evaluation show that it was able to evaluate the process and substantive components of the exercise. The features are shown in Table 4.8 below.
### Table 3.8: Sibbald et al.’s Criteria for Successful Priority-setting

<table>
<thead>
<tr>
<th>Process criteria</th>
<th>Outcomes criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stakeholder engagement</strong></td>
<td><strong>Improved stakeholder understanding</strong></td>
</tr>
<tr>
<td>Identify and involve all relevant internal and external stakeholders in the priority-setting process.</td>
<td>Assesses stakeholders’ understanding of the goals and rationales for priority-setting and the decisions made, as well as their understanding of organisational goals and objectives.</td>
</tr>
<tr>
<td><strong>Use of an explicit process</strong></td>
<td><strong>Shifted priorities or resources allocated</strong></td>
</tr>
<tr>
<td>A process that is transparent to all (in terms of who was involved and how and why the decisions were made).</td>
<td>The exercise must result in some change in the priorities; otherwise, the exercise was a waste of time.</td>
</tr>
<tr>
<td><strong>Information management</strong></td>
<td><strong>Improved decision-making quality</strong></td>
</tr>
<tr>
<td>Includes how the information was made available to the decision-makers, as well as how it was generated, collected and collated.</td>
<td>This relates to the use of available evidence and institutionalisation of the priority-setting process, as well as whether the institution is learning from the exercise to facilitate ongoing decision-making.</td>
</tr>
<tr>
<td><strong>Consideration of values and context</strong></td>
<td><strong>Stakeholder acceptance and satisfaction</strong></td>
</tr>
<tr>
<td>Considers contextual and organisational values, as well as those of the stakeholders, to guide priority-setting.</td>
<td>This is important for both internal and external stakeholders and is shown through their willingness to participate in other priority-setting processes, as well as their contentment with the decisions made.</td>
</tr>
<tr>
<td><strong>Revision or appeals mechanism</strong></td>
<td><strong>Positive externalities</strong></td>
</tr>
<tr>
<td>Includes a mechanism for reviewing decisions and addressing disagreements constructively.</td>
<td>This checks whether there is acceptance of the process by other organisations through positive media coverage and the willingness of other organisations to adopt the process.</td>
</tr>
</tbody>
</table>

Source: Sibbald et al. (2010)

This checklist is limited with regard to the specification of the institutional factors that are necessary for priority-setting, as well as the specification of implementation capacity.

It is clear from the above discussion that all the checklists provide useful insight regarding what the ideal priority-setting approach should include. Each checklist specifies the need for explicitness and for considering principles that are relevant to the context. Some checklists specify some principles that should be part of any approach. In addition, the majority recognise the need for due process. However, no one checklist is comprehensive and no checklist has been developed with the aim of assessing the ideal priority-setting approach in LICs.

One issue that emerges is the fact that the decision context is important not only with regard to the principles that guide priority-setting, but also with regard to determining
what a successful priority-setting process should be. In this regard, Sibbald et al. used local stakeholders’ opinions to elicit their checklist. However, other checklists that also provide a comprehensive view also consider the role of theory and empirical experience. Thus, it is clear that, in order to determine the ideal approach for LICs and for HIV prevention in Uganda, a checklist that includes a consideration of theory (economics and ethics), empirical experience and local stakeholders’ views is important.

### 3.5. Concluding Remarks

This chapter has examined the different issues that emerged as important in the literature on priority-setting. It concludes that the ideal approach to priority-setting should provide for due process, in which the elements arising from technical approaches to priority-setting are weighed against the wider policy objectives of decision-makers. It stresses that these processes and the technical analyses should be appropriate to the decision context.

Having recognised the importance of technical approaches and due process, as well as the importance of considering the wider policy objectives of decision-makers, it is necessary to know what technical approaches are suitable for priority-setting for HIV/AIDS in Uganda, and what the objectives of decision-makers are likely to be. Part B of this thesis attempts to address these issues.
Chapter 4: Theoretic Rationales: Economics and Ethics

4.1. The Contribution of Economics to Priority-Setting

‘There are many ways in which resources can be reallocated including robbery, theft and fraud. Generally few would condone these particular methods.’
( Drummond & McGuire 2001)

4.1.1. Introduction

Chapter 1 highlighted the need for priority-setting in the light of resource scarcity. The need for systematic guidance for priority-setting was also raised. Economics and the concepts therein have, over time, provided unique viewpoints through whose lenses different policy options or programmes have been described or prescribed to guide resource allocation. Moreover, essential concepts such as efficiency and equity address two of the major (but not only) goals expressed by many health systems. These goals focus on maximising/improving wellbeing (however that is defined) and reducing inequalities in wellbeing, respectively.

Efficiency in economic terms is usually distinguished into three distinct concepts. Technical efficiency is said to occur when production results in the maximum output from a minimum quantity of inputs, such as labour, capital and technology. Production efficiency or cost/effectiveness efficiency is said to occur when the commodity is produced at the lowest cost possible—that is, the cost of inputs is introduced. This usually occurs when the economy is operating along the production possibility frontier. At this point, the economy may not necessarily be Pareto-efficient (see Section 4.2.1). Technical efficiency is essential for production efficiency to occur. The last and most important concept of efficiency is allocative efficiency, which occurs when the distribution of goods and services aligns with the preferences of consumers or the value they place on these goods. Technical and productive efficiency are necessary for allocative efficiency to be achieved.
There are a number of frameworks in economic theory that provide ways to guide resource allocation. Embodied in these frameworks are ways of judging what an ‘optimal mix’ is or would be, and how to define the ‘value’ that consumers place on these goods. The next section of this chapter introduces each of these frameworks in turn, discusses the developments in the literature pertinent to them, and examines their implications for resource allocation. This will be undertaken with particular reference to HIV/AIDS in LICs, especially in light of the multidimensional (physical, social and psychological) effects of the disease. Following this will be a discussion of the methods of economic evaluation that arise from these frameworks and that have been used to guide healthcare policy and resource allocation. In particular, their congruence with these theoretical foundations, the peculiarities of priority-setting in healthcare and the empirical experience in using them for HIV/AIDS and LICs are addressed.

4.1.2. Normative Foundations of Economic Evaluation

4.1.2.1. Welfarism

Welfare economics has emerged over time as a predominant framework to assess the ‘goodness’ of a state of the world, policy or programme. The four tenets of this framework as summarised by a number of authors in the literature (Boadway & Bruce 1984; Brouwer et al. 2008; Hurley 2000; Sen 1977) are as follows:

- *The utility principle* supposes that individuals behave rationally in a bid to maximise their utility. In doing so, given a set of options, it supposes that the individual is able to rank the options and select the preferred options along defined notions of consistency.

- *Individual sovereignty* supposes that the individual is the best judge of his or her welfare, and sets the premise for individuals as the source of the value of different goods or services.

- *Consequentialism* supposes that utility can only be derived from the outcomes or effects of a policy or programme, rather than the process involved.

- *Welfarism* supposes that the goodness of a situation can only be judged based on the utility levels attained by the individuals in that situation.
Thus, the suitability of a policy is judged based on its effect on utility, as valued by the individual. The emphasis placed on changes in utility as the basis for determining welfare and the assumptions about the nature of utility have resulted in two broad divisions of welfare economics over time.

Classical/Utilitarian/Orthodox Welfare Economics

Utilitarian economics supposes that utilities can be cardinally measured and are interpersonally comparable. Utilitarianism also supposes that social welfare is simply the sum of utilities of all individuals in a society. Thus, a policy that results in the largest aggregate utility is the superior option (Bentham 1996; Marshall 1890). However, the popularity of this theory has waned in light of the demonstration of the ordinality of utility, as well as the impossibility of interpersonal comparison of utilities (Robbins 1938, 2007). The theory ignores that utility can be influenced by the outcomes of policies on others and is silent with regard to distributional issues of income in the status quo and the resulting utilities. Given that society is concerned with issues of distribution and fairness, this oversight has limited its applicability in evaluation of policy (Tsuchiya & Williams 2001).

Neo-classical/Paretian Welfare Economics

The Paretian framework does away with the need for interpersonal comparability (Pareto 1971). It also does not require cardinal measurement of utilities – ordinal measurement is sufficient. The theory is based on the premise that ranking of decisions is sufficient to result in a pareto-optimal distribution. In this framework, resource allocation that results in the increment of utility for some or all individuals (as judged by them), without reducing the utility of another, is Pareto-efficient. Any policy or state of affairs that results in some winners and some losers of utility is regarded as Pareto non-comparable.

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Cardinality implies that something can be quantified, while ordinality implies a ranking or position of an entity.

Interpersonal comparability implies that a unit of utility increment is the same, regardless of who experiences it.
The framework is beset with many weaknesses, both theoretical and empirical. The criterion for optimality is compatible with a large number of Pareto-efficient allocations for any given set of resources, some of which may result in inequitable resource allocations (Hurley 2000; McPake, Normand & Smith 2012; Sen 1979). The entire framework does not permit the ranking of Pareto optimal states, as interpersonal comparison is impossible (Culyer & Evans 1996; Hurley 1998). In addition, there is no regard for the distribution of endowments in the original state and the utility resulting from a programme. Empirically, there are few policies that would not result in some winners and some losers.

In light of these limitations, particularly the issue of the Pareto non-comparable states in non-interpersonal comparability, the Kaldor-Hicks criterion was proposed. This criterion suggests that, for these states, if the winners can compensate the losers such that a Pareto improvement is realised and still be better off themselves, then reallocation of resources can be considered optimal (Hicks 1937; Kaldor 1939). In reality, no such compensations are ever made. This criterion forms the basis of cost–benefit analysis in policy evaluation in many sectors, including health. The Kaldor-Hicks criterion has been criticised because, in the real world, people who stand to lose from policy decisions would not be very happy, despite an overall increment in utility (Reinhardt 1992). Richardson (2000) notes that such policies are based on the philosophy that the change is potentially better, which does not necessarily mean that it is better.

Some attempts at salvaging this framework, especially with regard to criticisms about hypothetical compensation, include the argument that with repeated reallocation of resources in society, the losses experienced by some would be compensated for by gains in future allocations, such that no compensation must be made. However, this assumes that decision-making in society is free from the influence of interest groups/policy elite (Tsuchiya & Williams 2001). In addition, it is argued that the market-based solutions derived from welfare economics would systematically favour one group of people over another (Hurley 2000).
Lastly, the welfarist framework assumes that the free market is an adequate mechanism for reallocation of resources and goods. However, as Chapter 1 shows, because of the peculiarities of health and healthcare, assumptions of the free market such as consumer sovereignty and the independence of supply and demand, are violated by the presence of informational asymmetry and supplier induced demand as well as moral hazard. This limits its role for positive and normative evaluation purposes for health and healthcare.

In general, the criticisms levelled against the suitability of welfarism in describing or prescribing resource allocation arise from the following factors:

- The singular focus on utility as the ‘maximandum’ and (where possible) ‘distribuendum’ of society, by which improvements in societal welfare are judged. This is compounded by the fact that the exact meaning of utility is ambiguous—(Richardson 2000, 2001). This not only necessitates recognition of what notion underlies a particular normative stance, but also has direct implications for what should be measured (Broome 1991; Brouwer et al. 2008; Dolan & Kahneman 2008; Sen 1991; van Praag). Another utility-related concern is the fact that, with regard to the evaluative space, utility is narrow and constrains the welfare function to the effect of goods or services on an individual’s utility, and not much else (Culyer 1989; Sen 1980).

- Hurley (1998) comments that the welfarist framework is essentially unidimensional. This might result in the exclusion of other outcomes of importance to the decision-maker, such as due process (1998; Russell & Mooney 2003). However, it has been argued that this is not a limitation of the welfare framework per se, but of its implementation, since willingness to pay (WTP) is an appropriate means of incorporating most decision-makers’ concerns (Birch & Donaldson 2003).9

- The ability to capture non-efficiency attributes—especially equity—is another criticism. As shown above, there are implicit assumptions that a unit of utility

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9 Willingness to pay is an economic concept that refers to the amount that people are willing to sacrifice or forego in order to have a certain benefit.
increment is of equal value to everyone, regardless of to whom it accrues. In addition, there is disregard for distribution of the initial endowment of wealth in the status quo and a failure to compare gains and losses between individuals in society. These factors each limit its usefulness to decision-makers in the real world.

The discussion above raises legitimate issues regarding the suitability of welfarism for evaluating or prescribing resource allocation for health. The failure to incorporate distributional concerns is a major limitation of this framework with regard to HIV/AIDS. This is especially so considering the disproportionate manner in which some groups of people are more affected by HIV/AIDS than others. In addition, the restrictive nature of the evaluative space is a major limitation, given that HIV/AIDS has far-reaching effects on people’s wellbeing. Last, the difficulty in defining and consequently measuring utility present challenges in using welfarism for HIV/AIDS, particularly in LICs.

4.1.2.2. Extra-welfarism

The term ‘extra-welfarism’\textsuperscript{10} refers to approaches that include other considerations \textit{in addition} to utility as determining social welfare (Brouwer et al. 2008; Culyer 1989; Hurley 1998; Rice & Unruh 1998). This paradigm rejects an exclusive focus on utility and broadens the evaluative space to include other sources of value, by incorporating ‘non-goods characteristics’ of individuals, such as health, freedom of choice and even the quality of relationships between individuals (Culyer 1989). Culyer (1989, 1990) notes that the paradigm is not a new one, and that strands of it can be traced back to Musgrave’s (1987) theory on merit goods, Tobin’s (1970) specific egalitarianism and Sen’s (1985) capability theory. Culyer notes that assessments of policy or interventions should naturally follow in their effect on these characteristics, such as health.

\textsuperscript{10} It is important to note that other terms, such as ‘non-welfarism’ (Dolan & Olsen 2011; Kaplow & Shavell 2001), have been used in the literature, at times interchangeably with extra-welfarism. This thesis adopts the definition by Carter (2001) and Richardson et al. (2005) as broad class of theories that reject some or all of the basic tenets of welfarism. This includes extra-welfarism.
The definition of what constitutes extra-welfarism has been unclear. Culyer (1989) at times implies that it subsumes or transcends utility to include non-utility characteristics, such as health, while at other times, Culyer (1990) implies that it consists simply of health as the maximand. This lack of clarity has been compounded by the manner in which cost-utility analysis (the archetypal application of this framework) has focused mainly on health. This lack of clarity has been the source of criticism (Birch & Donaldson 2003). In trying to clarify what extra-welfarism is, Brouwer et al. (2008) summarise the features of the extra-welfarism framework and the manner in which it differs from welfarism as follows:

- It permits the use of outcomes other than utility.
- It permits the use of sources of valuation other than the affected individual, and in that sense is paternalistic. It opens this up to include a range of different stakeholders by providing room for external judgement (Culyer 1990).
- It permits the weighting of outcomes (utility and others) according to principles that need not be preference based. These weights may include some sort of concern for distribution of benefits, such as the age weights used in the Disability Adjusted Life Year (DALY) approach, weights that capture concerns of fair innings and so forth.11 There is no consensus on the nature of these weights, but attempts have been made to incorporate them (Bleichrodt 1997; Williams 1997).
- It permits interpersonal comparison of wellbeing in a variety of dimensions. This is because—unlike welfarism, where interpersonal comparisons are impossible given the ordinality of utility—it is possible to compare health across individuals.

This framework has been widely accepted by healthcare decision-makers, and forms the basis of guidance for resource allocation in many jurisdictions. However, despite this, the framework has been criticised (Birch & Donaldson 2003; Hurley 1998; Russell & Mooney 2003). Some of these criticisms have also been directed at welfarism, as discussed above and will be mentioned here en passant. Extra-welfarism has often been thought to emphasise health maximisation, rather than utility maximisation—an argument that many

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11 It is important to note that the calculation of DALYs in the most recent BOD study (2010), does not include age weights.
find restrictive (Birch & Donaldson 2003; Coast 2004; Coast, Smith & Lorgelly 2008a; Coast, Smith & Lorgelly 2008b; Hurley 1998, 2000; Mooney 2005; Russell & Mooney 2003). This exclusive focus on health is criticised partly due to the failure to incorporate non-health benefits, such as process. This limits its ability to consistently rank interventions for resource allocation.

Related to the issue of health maximisation, Coast et al. note that the framework essentially retains many of the features of the welfare approach i.e. maximising benefit. In addition, despite Culyer’s call for an empirical basis for the components of the welfare function, Coast et al. note that the criterion of health maximisation is inconsistent with the empirical literature that shows views other than health maximisation such as the age of the beneficiaries (young versus the elderly), smoking status (issues of desert) and severity of disease (2008b). They also note that a focus on health is a narrow implementation of the capability approach, which is something with which others agree (Russell & Mooney 2003).

However, proponents of the framework note that it is possible to incorporate other issues of concern to decision-makers, such as equity, by using the weights discussed above (Brouwer et al. 2008; Culyer 1998) or by using a two-stage approach in which the other issues of importance can be addressed (Carter 2001). Culyer (1998) clarifies the fact that health is not the only component considered in the social welfare function—he notes that it complements utility. Utility in the function is regarded as the utility derived from improved health, following the policy or intervention. More recently, Brouwer et al. (2008), in defining the scope of potential components of the social welfare function, note that a focus on health maximisation is just one of many possible applications of extra-welfarism. Indeed, the evaluative space may include utility, health in addition to utility, health alone or any other value.
This framework for normative guidance was developed in the late 1970s and is fast gaining ground in health economics as evidenced by the rise of Programme Budgeting and Marginal Analysis discussed further in Chapter 10 (Sugden R & Williams A 1978). Unlike welfarism, the DMA assesses efficiency in relation to the objectives of the decision-maker. A broad range of perspectives is consistent with this approach, unlike the previous approaches that, by their nature, constrain the perspective of the evaluation. The focus on the decision-maker means that the perspective set by the decision-maker is the one that will be adopted for the analysis. In publicly funded health systems, the perspective adopted may be that of the democratically elected government (which may be societal or narrowly restricted to health). The application of this framework for HIV/AIDS in Uganda would require the determination of the decision-maker, given the fact that, even though the government (read UAC) is mandated to set priorities for HIV/AIDS, the bulk of the funding is derived from ADPs, who also have their own objectives.

In DMA, benefit is defined within the constraints set by the objectives of the decision-maker, which may be to maximise utility, maximise health only and/or achieve equal distributions of health, *inter alia*. Even though the framework is non-welfarist, it is easy to see that any economic appraisal approach consistent with welfarism or with extra-welfarism can fit under this approach. Thus, it is important for the analyst to determine the objectives of the decision-maker early in the priority-setting exercise.

An advantage of this framework is that, given the primacy placed on the objectives of the decision-maker, the analyst—and consequently the analysis—is not restricted by the issues that plague extra-welfarism and welfarism, such as uni-dimensionality, consequentialism and disregard for due process (Carter 2001). This paradigm is considered more pragmatic than theoretical, which makes it more useful to decision-makers (Drummond, Sculpher & Torrance 2005). However, others feel that this pragmatism comes at the expense of theoretical grounding, and propose that economic appraisal be consistent exclusively with the Paretian framework (Birch & Donaldson...
1987; Birch & Gafni 1996). Despite this, a number of priority-setting approaches that are increasingly popular in different decision contexts are rooted in this paradigm, thereby demonstrating its appeal. These include the PBMA and ACE approaches. Sugden and Williams defend this approach on the basis that, in a public and centralised decision-making system, the objective chosen by decision-makers will be similar to that implied by the Paretoian framework.

The flexibility provided by this framework in defining the evaluative space, particularly in regard to the wider objectives of the decision-maker, is appealing. This is more so in the context of HIV/AIDS in Uganda, where decision-makers are likely to be multiple, as are the objectives of decision-making. In particular—given the scepticism experienced by policymakers in Uganda regarding the applicability of technical analyses to priority-setting—it provides an opportunity for the analyst to engage with decision-makers.

More recently, two alternative approaches that provide normative guidance for resource allocation have been proposed. These are briefly discussed briefly below, before a discussion of the applied techniques of economic evaluation.

4.1.2.3. Empirical Ethics

The basic premise of empirical ethics is that the two prevalent frameworks above are restricted in the evaluative space and generally tend to ignore or conflict with deeply held values that have been empirically demonstrated in the literature. These values include the ‘rule of rescue’ principle—‘the imperative people feel to rescue identifiable individuals facing avoidable death’ (Dixon & Welch 1991a; Hadorn 1991a, 1996b) and the severity of disease since it has been shown that society would prefer to prioritise those with a more severe disease, rather than healthier people (Nord 1999a, 1999b, 2001; Nord et al. 1995). Some of these values are in clear conflict with the maximisation of utility or health inherent in welfarism and extra-welfarism. In light of this growing evidence, Richardson and Mckie (2000, 2001, 2005, 2009) argue that, given the failure of orthodox economics and ethics to provide a conclusive answer regarding what should constitute value, a set of
defensible principles by which priorities are set should be determined in an iterative manner. This should involve both empirical enquiry into population values, and ethical analysis of the results of this enquiry. The analyst should seek these values from the community, including decision-makers, using different methods and information triangulated to correct for irrationality. In this regard, this method differs from DMA because DMA places greater emphasis on the decision-maker, rather than on the community. It is assumed that, following a number of iterations, a stable set of principles could be derived and used in an algorithm that would guide resource allocation and would have the support of the general population.

4.1.2.4. **A Capabilities Approach to Economic Evaluation**

In the 1980s, Sen (1980, 1985, 1992, 1993) proposed the theory of capabilities as an alternative to welfarism for evaluation of wellbeing. This was born out of the fact that utilities focus too much on the goods and not on what the goods enable one to do, nor their capabilities in life. Capabilities are those sets of abilities that enable people to do or achieve something, whether or not they choose to do so. In contrast, functionings relate to the individual’s use of goods, such as eating and running.

Within this framework, one potential area of evaluation is between the achievement of one’s goals (functionings) and the freedom to achieve these goals (capabilities). Sen lists a non-exhaustive list of capabilities that argues that the set of relevant capabilities ought to be specific to context and time. However, this has led to concerns regarding its operationalization for applied evaluation (Nussbaum 2003; Richardson & McKie 2005; Robeyns 2003).

This approach provides significant contributions for policy evaluation, such as an alternative distribuendum with regard to equality—that is, the distribution of capabilities or advantage (Sen 1992). In addition, it has been used to assess standards of living in the area of human development. Despite the interest in this approach in health economics, it is only recently that health economists have proposed a capability approach to economic
appraisal to address the concerns of restriction in evaluative space that plague the previous two frameworks (Coast, Smith & Lorgelly 2008a; Coast, Smith & Lorgelly 2008b; Cookson 2005; Lorgelly, Coast & Smith 2010; Lorgelly et al. 2010).

The frameworks discussed above provide useful ways of thinking about how optimality, with regard to the service mix in society, can be defined. With regard to public health policy, welfarism, extra-welfarism and DMA have had the most influence in guiding resource allocation. To the researcher’s knowledge, no experience of priority-setting has drawn from the empirical ethics or capabilities approach. With this in mind, the next section reviews the evaluation techniques that have developed as a result of these normative foundations. Particular attention is given to the manner in which the applied techniques relate to these frameworks (hence their theoretical validity) and the empirical experience based on their application. The application of these techniques in different decision contexts—particularly, SSA, Uganda and HIV/AIDS—will be reviewed. The purpose of this is to inform an ideal framework for priority-setting, tempered with considerations for feasibility and acceptability, inter alia.

4.1.3. Economic Evaluation of Health Services

The previous section explored the validity and suitability of the three normative approaches that have dominated economic evaluation of healthcare programmes: welfarism, extra-welfarism and DMA. The commonly applied techniques of economic evaluation of healthcare derive their conceptual underpinnings from these frameworks. The discussion in this section will explore the congruence of these applied techniques to the normative frameworks, with the aim of assessing their contribution to priority-setting for health, especially for HIV/AIDS in Uganda.

The three techniques reviewed in this section have significant similarities and differences. The similarities include their shared consideration for the important concept of opportunity cost, which refers to the benefit foregone in the adoption of one action or service instead of another/others. Thus, each of these techniques involves the assessment
of the costs and consequences of an action and the comparison of alternative actions (a distinguishing feature between economic evaluation and other forms of health programme evaluation).

Another common feature is *marginal analysis*, which involves the evaluation of the costs and benefits of an additional unit of activity. In the health policy arena this refers to a change in health services or programs. With regard to the research task at hand this has important implications for the assessment of programs for the prevention of HIV/AIDS in terms of the scale at which they should be implemented; determining the populations that benefit the most from a particular program (especially since MARPS are largely ignored); and in RLS, the mode of service delivery.

The major difference, as will be seen subsequently, relates to the manner in which the benefit of health programs is defined, measured and valued within the different techniques. This in turn draws conceptually from the normative frameworks discussed above. In a related way, particularly important for priority-setting, the techniques vary in the particular notion of efficiency that is addressed. Some address technical efficiency while others have the capacity to address allocative efficiency; which is the focus of priority-setting as earlier discussed. Thus this is an essential component of the suitability of the technique to priority-setting.

4.1.3.1. *The Methodological Approach to Economic Evaluation*

To explore the congruence of economic evaluation techniques and their suitability for the priority-setting question central to this thesis, the design of the economic evaluation method is used as espoused in the checklist by Drummond, Sculpher and Torrance (2005).
The Research Question

This is the starting point for any evaluation and, within the economic evaluation context, requires specification of the perspective of the study, the alternatives being compared and the context in which the study will be conducted.

The Viewpoint/Perspective of the Study

The perspective of the study is important because it determines the range of costs and benefits (the opportunity cost) that will be included in the economic analysis. Perspectives might include the societal perspective, healthcare budget perspective, third party payer’s perspective or perspective of the patient. Theoretically, the societal perspective is the valid perspective and includes all resource use and savings, as well as all benefits of the intervention, irrespective of to whom they accrue. The societal perspective permits comparison of interventions across sectors and of the three techniques. Cost–benefit analysis (CBA) (discussed below) is the technique that is able to accommodate the societal perspective in this manner.

The healthcare budget perspective is narrower. It considers costs and consequences accruing to both public and private sectors, but only within the health sector. It has been argued that, for purposes of symmetry, only costs occurring within the healthcare sector should be considered. However, Drummond argues for the inclusion of inter-sectoral costs, putting relevance above symmetry as the key principle. This debate is unresolved. Despite the fact that this perspective has been discouraged as narrow and unduly driven by arbitrary funding divisions, it is nonetheless the most commonly adopted perspective in the health sector chiefly because of the pragmatics of undertaking evaluations are sometimes at odds with the theoretical basis of what should be included.

The extra-welfarist framework is more consistent with this perspective, although it is able to adopt others as well. The DMA framework is able to accommodate any perspective, subject only to the requirements of the decision-maker. Drummond cautions that the
adopted perspective may influence the cost-effectiveness of an intervention, and thus more than one perspective should be included in an evaluation.

*Does the Analysis Involve a Comparison of Relevant Alternatives?*

Theoretically, the key concept of ‘opportunity cost’ demands that in selecting the options for change, the comparison should be made with the ‘next best alternative use’ of the resources. In practice, for economic evaluations of single interventions or conditions, the identification of the relevant comparator is relatively easy (current practice and/or one or two competing options for change). However, when the evaluation is being conducted for the entire health sector (as with Oregon -see Chapter 5), the range of possibilities is immense. More often than not, the currently implemented programme (that may be more relevant from the policy perspective) may not be the best alternative use of resources and so this further complicates the selection of the comparators. Also, as much as possible, the inclusion of all relevant comparators should be considered.

*The Context*

The decision context is important because it not only constrains the choice of comparators in the economic evaluation, but also determines who will be involved in the decision-making process, the manner in which priority-setting will occur and the values that will guide decision-making. This was demonstrated in Chapter 3. It is important for the results of economic evaluation to be relevant to the decision context in order to inform priority-setting. Thus, the economic evaluation technique should be able to accommodate these contextual issues. Extra-welfarism and DMA are better equipped to accommodate these issues than is welfarism, as discussed above.

*Determining Effectiveness*

This is a crucial step in the design of economic evaluations and is a key feature of all three techniques. It is useless to evaluate programmes for which there is no established
effectiveness or that have been shown to be ineffective. It is thus important to establish this early in the study. Critical at this point is the assessment of the quality and strength of the evidence of effectiveness. Some jurisdictions—such as the National Health and Medical Research Council (Merlin et al.) and the PBAC (2008) in Australia—prefer effectiveness estimates based on sound meta-analyses and well-designed (preferably head-to-head) randomised control trials. No guidelines exist for Uganda specifically

Discounting Costs and Benefits

Discounting is the process by which future costs are made worth more than those occurring in future in order to cater for the opportunity cost to spending money in the future and the desire to enjoy benefits now rather than in the future. This is a contentious and unresolved issue in the literature, although general guidance is provided for different jurisdictions. People have a positive rate of time preference—that is, they prefer to have the benefits now and incur the costs later. Thus, it is recommended that allowances for differential timing of costs and consequences be made. The issue that remains is which discount rate to use; whether effects should be discounted at all; and, if so, whether costs and effects should be discounted at the same rate (Brouwer & Koopmanschap 2000; Cairns 2001).

The welfarist framework is consistent with the use of aggregated individual time preference, especially since valuation of health is likely to vary at the individual level. The extra-welfarist and DMA frameworks are consistent with a societal time preference, in which the discount rate is determined by the decision-maker or government. The latter is the most commonly adopted approach in practice, with the effects and costs (albeit at different rates) at discount rates nominated by the decision-maker in different jurisdictions. For instance, the UK uses a discount rate of 3.5% (Drummond, Sculpher & Torrance 2005). The WHO-CHOICE technique recommends a discount rate of 3%, which is used in economic evaluations in LICs (Edejer 2003).
Handling Uncertainty

Given the uncertainty of the effectiveness of programmes, the cost estimates and some of the assumptions built in the economic analysis, it is crucial that a sensitivity analysis be undertaken to assess the effect of this uncertainty on efficiency estimates. The possible sources of uncertainty within economic evaluations and the manner in which they are dealt with are extensively discussed by Briggs et al. (1999a, 1999b; 2001; 2000; 1999). He distinguishes between uncertainty arising in patient level analyses and uncertainty in decision analytic models. Within the former, uncertainty can be methodological, for which he recommends the use of sensitivity analysis or the adoption of a reference case.

Uncertainty arising from variation in sampling can be handled by statistical analysis (adopting the confidence intervals of efficacy estimates and providing the incremental cost-effectiveness ratios [ICERs] with a range of results), while uncertainty arising from the need to generalise results can be handled using a sensitivity analysis. In decision analytic models that are commonly used in economic evaluation, uncertainty arising from the structure or process of the model can be handled using sensitivity analysis in which different assumptions regarding the structure of the model are varied. Uncertainty arising from the parameters used in the model was handled using probabilistic sensitivity analysis.

A number of approaches for sensitivity analysis can be used. These include one-way and multi-way sensitivity analyses, in which one or more parameters are varied in the evaluation to determine their effect. Scenario-based analysis can also be used, in which the results of different scenarios—such as best outcome and worst outcome—are presented. In addition, probabilistic analyses can be undertaken. As a tool for priority-setting, this is a crucial step in providing decision-makers with an idea of the likely results of implementing the programmes, given the evidence available.
For purposes of resource allocation, it is essential that there are decision rules to establish the worth of the programme. The advantage of economic evaluation is that it provides the decision-maker with a way to judge the goodness of a programme in comparison to others. CBA uses the net benefit decision rule, in which the programmes that result in a positive net benefit are worth funding. In addition, the cost–benefit ratio is also useful for decision-making, in which a positive cost–benefit ratio greater than unity is desirable.

Cost-utility analysis (CUA) and CEA use the ICER. With this rule, the programmes that cost the least per unit of health gained are considered efficient. It is assumed that an implicit threshold of the ICER exists by which the incremental cost-effectiveness of these programmes is considered. In LICs, Shillcut et al. (2009) show that a number of threshold ICERS have been suggested and are used for priority-setting. For instance, the Health Sector Priorities Project by the World Bank determined an ICER threshold of US$150 across countries. The Commission on Macroeconomics in Health recommends a multiple of the gross national income be used (Feachem 2002; World Health Organization 2001a, 2001b), while the WHO-CHOICE framework recommends a multiple of GDP (Edejer 2003).

It is argued that since decision-makers make a judgement on the monetary equivalent of the worth of a QALY or life year gained using the results of CEA/CUA, these two techniques are near equivalents of the CBA technique (Phelps & Mushlin 1991). However, as Carter (2001) points out, this argument ignores important conceptual and ethical differences in the techniques. These include the fact that CBA involves valuation at the individual level, while CUA involves social valuation of health.
Valuing Health Benefits: Different Techniques and Different Measures

CBA

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CUA

CUA has emerged as a predominant evaluation technique over the last three decades. The hallmark of the approach is the valuation of health outcomes using a health-related quality of life (HRQoL) index that adjusts for any improvements in the longevity of life due to any intervention. In this regard, it differs from CEA, discussed below, which measures health only in natural units.

The HRQoL index is usually a health state index that is preference based and can take many forms, including the QALY, the Health Year Equivalent, the DALY, Saved Young Lives Equivalent (SAVE) and more. Only the QALY and the DALY are dealt with in detail in this thesis. The aim of the index is to provide a single numerical unit of health that combines all relevant aspects of health outcomes that are important to the decision-maker within the one outcome metric. The advantages of this approach over the others are well recognised in the literature (Torrance 1986) and include the ability to provide comparison across programmes with disparate outcomes and compatibility with the decision needs of the decision-makers. Thus, situations in which CUA has been deemed useful for priority-setting include when quality of life is an important outcome and when comparing across programmes with different health outcomes (Drummond, Sculpher & Torrance 2005; Torrance 1986).

The QALY

Estimation of QALYs involves description of the health state, followed by elicitation of the health-related utility of the state, which is then used to weight any improvement in life expectancy that might arise from an intervention. The assumption underlying the measure of utility here is that it is cardinal, which means that the strength of preference for the health state is measurable. It is also assumed that it can be measured on an interval scale—that is, that this utility exists on a scale anchored at zero (which represents states equal to death) and one (which represents states equivalent to full health). In addition, it is possible to value states that are worse than death. These would have a negative sign, such as -0.5.
Thus, for any intervention that results in an increase in life expectancy by one year, a utility score of 0.8 would result in 0.8 QALYs (0.8*1).

In order for QALYs to represent individual preferences for health, there must be:

- **utility independence**—the utility derived from a health state is independent of the utility related to the duration of that state
- **constant proportional trade-offs**—an individual is able to sacrifice constant proportions of time in good health in order to gain a health improvement, irrespective of the length of time left
- **risk neutrality to time**—an individual is risk neutral with regard to gambles taken over the remaining number of years of his or her life, for all health states (Pilskin, Shepard & Weinstein 1980).

QALYs have been used in the economic evaluation literature under these assumptions, although evidence to support the validity of these assumptions is equivocal—see (Dolan 2000; Mehrez & Gafni 1987; Miyamoto 1999; Stiggelbout et al. 1994; Tsuchiya & Dolan 2005).

Other issues of issues of importance pertaining to the use of HRQoL measures, such as QALY, exist. One important issue pertains to the elicitation of preference measures. These measures include:

- Direct elicitation methods like rating scales, the Time Trade-off method and the Standard Gamble. These are not described in detail in this thesis but it is important to note that even though they purport to measure the same metric, they differ in the approach used (particularly the way utility is defined in the measure), in the estimates derived as well as the ease of using (Brazier & Ratcliffe 2008; Dolan 2000). They however, have been found to have similar reliability (ibid).
- Indirect utility elicitation methods based on health descriptive systems, such as the MAUIs and the condition-specific instruments mentioned above, are the most commonly used. These include the EQ5D (Brooks 1996; Brooks, Rabin & de Charro 2003; Kind, Brooks & Rabin 2005), the health utilities index (Horsman et al. 2003),
the Assessing Quality of Life (AQoL) (Hawthorne, Richardson & Osborne 1999) the SF-36 (Ware et al. 2000; Ware Jr & Sherbourne 1992) and so forth.

The MAUIs consist of a questionnaire and scoring algorithm that is used to generate the scores for each health state described in the MAUI. In development of the MAUIs, the general approach includes the use of a questionnaire to determine the utility scores for a limited number of health states. These might be obtained using a rating scale, as was the case with the EQ-5D or TTO in the case of the AQoL, or SG in the case of SF-6D. A model (econometric or regression model) is used to extrapolate and interpolate these scores to the total number of health states in the MAUI. Within these instruments, health is described using dimensions such as mobility.

No one instrument has been shown to be superior. Important attributes of a HRQoL instrument that determine its use include the ability to:

- replicate findings (test and retest stability)
- detect small changes in wellbeing that are indicative of changes in health (sensitivity)
- give similar answers from different interviewers (inter-rater reliability)
- capture differences in extreme health states (no ceiling and floor effects)
- provide estimates similar to a ‘gold standard’ (criterion validity)
- measure the individual’s perception of wellbeing (construct validity) (Carabin et al. 2008).

The MAUIs have been used for HIV/AIDS in many different studies and different contexts. A systematic review shows that the commonly used MAUIs in measuring HRQoL for HIV/AIDS are the SF-36, EQ-5D and health utilities index (Clayson et al. 2006). This review shows that SF-36 displays good internal consistency, reliability, construct validity and responsiveness to the commencement of Highly Active ART (HAART), change in CD4 cell count, viral load and symptoms.
More commonly, however, the practice has been to use disease-specific instruments, such as the MOS-HIV/AIDS, which was developed as a derivative of the SF-20 and has been translated and validated for use in the US, the UK, Thailand, Taiwan, Zimbabwe and Uganda, *inter alia* (Hsiung et al. 2011; Huang et al. 2013; Ion et al. 2011; Robberstad & Olsen 2010; Shahriar et al. 2003; Skevington & O’Connell 2003). In Uganda, the instrument was adapted to the local culture and translated to Luganda and Rutooro (two common local dialects) (Palermo et al. 2013; Stangl et al. 2012). Other disease-specific instruments exist, and their psychometric properties are shown in Table 5.1 below (Clayson et al. 2006).

### Table 4.1: Psychometric Properties of HIV/AIDS Specific Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Internal consistency</th>
<th>Reliability</th>
<th>Convergent validity</th>
<th>Discriminant validity</th>
<th>Responsiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOS-HIV</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>FAHI1</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>HAT-QOL2</td>
<td>*</td>
<td>NA</td>
<td>NA</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>GHSA3</td>
<td>***</td>
<td>NA</td>
<td>***</td>
<td>NA</td>
<td>*</td>
</tr>
<tr>
<td>LHI4</td>
<td>*</td>
<td>NA</td>
<td>*</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

1 = Functional assessment of HIV infection; 2 = HIV/AIDS target quality of life; 3 = General health self-assessment; 4 = Living with HIV infection

*** Strong evidence * equivocal evidence

Other unresolved issues regarding the use of QALYs relate to the source of valuation of the health state—whether it should be the patient or the public who pay for healthcare, and how to deal with the related issue of adaptation. A middle ground is advocated, in which the public is the source of values, but the experience of the patient is explained to them beforehand, and thus the influence of adaptation is taken into account by the respondent (Brazier & Ratcliffe 2008).

Distributional issues have been a source of concern in the use of QALYs. These include the fact that each QALY is valued the same, regardless of to whom it accrues, given that each year gained is the same for all. This egalitarian manner allows simple summation of...
QALYs, but does not reflect the concern that society has for those in dire situations. It has been argued that maximisation of QALYs discriminates against people who start with poor health status due to permanent disability, age, race or socioeconomic status (Harris 1987; Harris 1995). A related issue is the fact that QALY maximisation ignores the distribution of QALY gains, meaning that decision-makers have to make judgements about the desirability of these gains in the light of some explicit social judgements on distribution. The debate on how to overcome this weakness is still unresolved (Cookson, Drummond & Weatherly 2009; Richardson 2009).

A recent workshop of the International Society for Pharmacoconomics and Outcomes Research (ISPOR) reviewed the QALY, its challenges, its merits and the way forwards regarding its use (Drummond et al. 2009; Johnson 2009; Kind et al. 2009; Lipscomb et al. 2009; Nord, Daniels & Kamlet 2009; Smith, Drummond & Brixner 2009; Weinstein, Torrance & McGuire 2009). The key messages arising from this review were recognition of its popularity; that 30 years later, controversial issues remain largely unresolved; that there is a need for a reference case for most valuations of HRQoL; and that evaluations should incorporate this and any other methodological approaches that may be needed. Another key issue is the need to consider experience utility over \textit{ex-ante} utility, and the need to address some of the more fundamental challenges of the QALY, especially the theoretical ones.

The use of QALY-based CUA in SSA has been limited to within programme priority-setting, rather than to inform collective priority-setting across programmes. For instance, Gaziano, Opie and Weinstein (2006) and Gaziano et al. (2005) used it to evaluate the cost-effectiveness of hypertension guidelines in South Africa. QALY-based CUA has also been used to evaluate the cost-effectiveness of different HIV/AIDS interventions in different countries within SSA (for example, (Badri et al. 2006; Cleary et al. 2004; Cleary, McIntyre & Boulle 2006; Rosen et al. 2008; Vijayaraghavan et al. 2007). The utility estimates for

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13 This is interesting because the interval properties on the utility scale are in regards to valuations not health per se – so perhaps moving from a utility of 0.2-0.3 in fact means a smaller improvement in health is required (because one is already quite unwell) compared to a movement from 0.8-0.9 – where one is already quite well-off (in terms of health status)
these studies were obtained from the literature. However, for the majority of studies in this setting, the issues of data tractability are rife.

The volume of studies in the HIV/AIDS and SSA decision context speaks to the plausibility of QALY-based CUA for priority-setting in HIV/AIDS in Uganda. However, the paucity of evidence of its use for systematic collective priority-setting in this context suggests challenges regarding its use. These may include the costs of undertaking such evaluations for collective priority-setting, the availability of data for these studies at such a level, and the lack of acceptability of such studies among decision-makers resulting from a lack of understanding or resistance to explicit priority-setting in general.

*The DALY*

The DALY was developed in 1993 as part of a global priority-setting exercise to determine the BOD and inform resource allocation decisions as a denominator in CEA at the mega and macro levels (Anand & Hanson 1997; Arnesen & Nord 1999; Bobadilla et al. 1994). Like the QALY, the DALY combines mortality information related to a condition with morbidity information. Similarly, use in priority-setting involves the summation of individual DALYs. The DALY is a measure that expresses health in terms of disability due to disease/years lived with disease and loss of life due to premature death. Premature death is determined based on the difference between a nominated life expectancy (such as for Japanese men) and the age at death. While in the QALY, a score of one refers to perfect health and zero refers to death, in the DALY, one refers to death and zero refers to perfect health.

In its original form, the DALY was developed with disability weights in the study determined using person trade-off. The study used 22 indicator conditions to determine the weights based on the opinions of a panel of experts. These conditions were then reclassified under seven disability classes that were later used to allocate disability weights to all the conditions considered in the study—486 sequelae and 108 causes of death and
disability. It also used age weights to weight the disability. Positive weights were given to those aged 10 to 55 years and the elderly, while young children were given less weighting.

The use of the DALY is highly criticised (Mooney & Wiseman 2000; Paalman et al. 1998; Williams 1999; Wiseman & Mooney 1998). These criticisms arise from the fact that the elicitation of the disability weights is via expert opinion through a Delphi-type technique, which is viewed as an inaccurate representation of the disability that patients may experience. In addition, the DALY approach is criticised for being ageist because it is calculated using age-specific weights that place greater weight on young adults and less weight on the elderly and infants. The use of these age weights also reflects value of life in terms of productivity; therefore, the DALY discriminates according to productivity. Like the QALY, there is a need to incorporate equity concerns into the priority-setting process because the DALY does not address these (Anand & Hanson 1998). Deliberative methods might be useful in doing so, although this places the burden on the decision-maker.

More recently, the DALY has been revised. A recent issue of the Lancet was dedicated to detailing the results of the Global BOD from 2010 (Murray et al. 2013; Salomon et al. 2013a; Salomon et al. 2013b). The papers detail changes in estimation of the DALY weights, number of conditions and sequelae studied, as well as the findings of the analysis. Significant changes in the studies included that disability weights were based on surveys in the general population in five countries, including Bangladesh, Indonesia, Peru, Tanzania and the US. An internet-based survey was also used based on paired comparison to determine people’s values. In addition, 291 causes of disability and death were included, as opposed to 108. The number of sequelae included was 1,160, compared to 486. No cost-effectiveness analyses have been conducted based on this as yet.

Since its introduction in 1993, the DALY approach has been used for systematic priority-setting at the mega level (Bradshaw & Schneider 1998; Hansen & Chapman 2008; Lopez 2006; Mathers & Loncar 2006; Vos et al. 2009). It has also been endorsed by the WHO for use in the generalised cost-effectiveness approach for setting priorities (Edejer 2003).
In Uganda, the DALY was used to develop the Minimum Health Care Package (MHCP) in 1995 that has since formed the basis for the Health Sector Strategic Plan (Bobadilla & Cowley 1995a). DALY-based CUA has been used to evaluate programmes for achieving universal access to contraceptive methods (Babigumira et al. 2012), for malaria interventions (Hansen et al. 2012) and for immunisation activities in Uganda (Bishai et al. 2011). It has also been used to determine the cost-effectiveness of different HIV/AIDS interventions in Uganda and SSA as a whole (Gilson et al. 1997; Kuznik et al. 2012; Marseille et al. 1999).

The WHO has a database that has estimates for DALYs per disease condition, and these have served as a source of estimates for DALY in different studies in this setting and for HIV/AIDS. These estimates in the past have not been context specific, although a recent effort to improve DALY estimates resulted in the availability of regional estimates of DALYs (Murray et al. 2013). The disability weights were estimated using population-based surveys in LICs and other countries, as well online surveys among academics and policymakers, in which respondents made a series of paired comparisons between health states presented as brief lay descriptions (Salomon et al. 2013a). Estimates on years of life lost were based on life expectancy estimates relevant to each country and region (Salomon et al. 2013b).

The obvious familiarity of the measure with decision-makers at most levels in Uganda and SSA, plus the availability of estimates of the DALY for this context and HIV/AIDS, makes it a plausible measure of benefit for priority-setting in this setting. However, similar to QALY-based CUA, it is likely that data tractability issues required for collective priority-setting and affordability are important to note for priority-setting based on DALYs. Overall, CUA is a popular approach for priority-setting in many contexts in the world, including SSA and Uganda. It is a plausible solution to the issue of commensurability and consequently comparability across programmes. Despite the focus on maximisation of health benefits, other issues of importance to decision-makers, such as equity, can be incorporated into the decision-making process. The historical use of a
number of HRQoL measures, and indeed CUA, supports the case for the plausibility of its implementation in HIV/AIDS in Uganda.

**CEA**

CEA is the last of the economic evaluation approaches discussed in this chapter. Like CUA it sits easily within Extra-welfarism and DMA. Unlike the previous techniques, CEA measures health outcomes or health care benefits in natural units such as number of cases averted, number of healthy days, and percentage change in blood pressure or life years gained.

The decision rule in CEA is the ICER. The ICER compares the incremental cost of healthcare interventions under comparison with the incremental gains from the intervention. It is similar to the one used in CUA. The use of the ICER has been hotly contested in the literature. Birch and Gafni (2006a, 2006b, 2007) and others argue that the use of the ICER results in an increase in healthcare expenditure for every increase in effectiveness of a healthcare programme, and thus threatens the sustainability of public health financing (Birch & Gafni 2006a, 2006b, 2007; Gafni & Birch 2006).

The advantages of CEA mainly relate to its practical feasibility and to the use of the natural units. The fact that description of health is simple compared to the above approaches makes it very popular with analysts especially in instances where it is difficult to impute HRQoL measures. In addition, the use of natural units makes it very popular with non-economists particularly people of the clinicians. However, the use of natural units limits its use in priority-setting because of lack of a common metric that can be used to compare across all programs (Drummond, Sculpher & Torrance 2005). For this purpose, its use is restricted to instances when the worth of a program has already been determined and thus determines technical efficiency i.e. the best manner to minimize cost and maximize output\(^{14}\). Another limitation of this approach is that it is a narrow measure of health given

\(^{14}\) It can also be used for allocative efficiency purposes within the context of priority-setting for the same disease.
the fact that HRQoL of life and other health outcomes are not incorporated in the benefit measure.

Despite the shortcomings of CEA, it is a relatively more popular technique for economic evaluation than the CBA and CUA. In SSA, a lot of analyses have been conducted using the CEA technique, including CEA for HIV/AIDS interventions (Badri et al. 2005; Goldie et al. 2006; Kahn, Marseille & Auvert 2006; Sanders et al. 2005; Söderlund et al. 1999; Sweat et al. 2000; Walensky et al. 2009). CEA has been used to inform collective priority-setting for HIV prevention in Chad (Hutton, Wyss & N'Diékhor 2003). This analysis used a mixture of local and international evidence to model the cost-effectiveness of HIV/AIDS interventions. It is unclear what policy effect this study had for determining priorities in Chad.

CEA seems plausible to inform priority-setting for HIV/AIDS in Uganda and SSA. This is not only because it is less costly of the three options, but also because the data needs of the analysis are less than the other techniques. In addition, there are commonly used clinical instruments for HIV/AIDS and one is not constrained to compare these to other disease areas if indeed the decision context is only about HIV/AIDS.

### 4.2.4. Summary of Key Features of Economic Contribution Relevant For Priority-Setting for HIV/AIDS in Uganda (T)

The key points in this chapter were:

- The chief contribution of economics to priority-setting for health is the concept of efficiency and particularly the notion of allocative efficiency, which is geared towards producing what is valued by the consumer in an optimal manner.
- The predominant normative frameworks define what should be allocated (social welfare) and the manner in which it should be valued. Of these three, welfarism has been shown to be the most theoretically developed framework. However, the emphasis on the individual as the source of valuation and the restricted evaluative space limits its relevance to a collective priority-setting space for health.
The non-welfarist frameworks have been shown to extend the evaluative space beyond utility. Extra-welfarism includes non-goods characteristics, such as health, while the evaluative space in DMA could potentially include all the characteristics that decision-makers deem important. In addition, the argument is made for social valuation of health. This is unlike welfarism, where the individual is the source of valuation. These have made non-welfarist frameworks, particularly DMA, attractive to decision-makers and health economists.

Welfarism and extra-welfarism are criticised for being uni-dimensional. However, extra-welfarism is able to incorporate other issues of importance to decision-makers through weights, such as equity weights and the use of second filters. This lends it relevance to decision-makers for priority-setting.

DMA has also emerged as a favoured normative framework, especially since primacy is given to decision-makers as the source of valuation. In addition, the ability to incorporate all the issues of importance to decision-makers in LICs and in general makes it appealing. DMA is also compatible with any applied economic evaluation technique, as long as it fits the objectives of the decision-maker.

The applied economic evaluation techniques vary in their ability to address the priority-setting-relevant notion of allocative efficiency. The discussion has shown that CBA and CUA are better equipped to do so than CEA. An essential component of applied techniques is the definition of the research question for the priority-setting question. All techniques incorporate this important step in defining the study perspective, comparator and the manner in which benefit is measured. The choice of the applied economic evaluation will influence the assessment of social welfare and the viewpoint of the study.

The concepts of ‘opportunity costs’ and ‘marginal analysis’ are essential features of economic evaluation techniques, especially within priority-setting. In addition, rigour in identifying and measuring values is an essential feature of a quality study that will improve the relevance of economic evaluation for priority-setting.

CBA is seen as the gold standard by welfarists. It has been adopted for economic evaluation in healthcare and, to a lesser extent, in LICs for evaluation of single interventions. However, the lack of its use for collective priority-setting for health
highlights problems with feasibility and the ability to address all the needs of
decision-makers.

CUA and CEA have been used more widely than CBA for evaluating single interventions
in LICs. In particular, CUA has been used for collective priority-setting, both at the global
level and the macro level in this decision context. The health measure that has been
popularly adopted is the DALY. This has been updated to address weaknesses in the
original approach of valuation, and is familiar to decision-makers in LICs. This makes the
DALY-based CUA particularly relevant for priority-setting for HIV/AIDS in Uganda.
4.3. The Contribution of Ethics to Priority-Setting

‘Justice obliges us to pursue fairness in the promotion of health, but policy needs the guidance of ethics in determining what this means.’ (Daniels 2006)

Given that priority-setting will almost invariably result in losers and gainers, there is a concomitant need to ensure fairness in the way resources are distributed, losers and gainers are selected, and resource allocation decisions are reached. The discipline of ethics has been influential in the reality of priority-setting and in the debates that have characterised how priority-setting should be conducted. The key issue addressed by ethics is what the notion of fairness means.

Therefore, this section is devoted to a review of the literature on the ethical issues relevant to priority-setting for health and HIV/AIDS in RLS specifically. This discussion does not pretend to advance these theoretical debates. It only seeks to situate the issues of resource allocation for HIV/AIDS in this debate and to determine what the literature on ethics can contribute to the development of an ‘ideal’ framework for priority-setting in the context of HIV/AIDS in RLS. In particular, the focus is on the way different normative ethical frameworks or viewpoints have shaped the setting in which priority-setting occurs, and what they offer in the way of defining what is fair. Therefore, terms such as ‘consequentialism’, ‘deontology’, ‘distributive justice’ and ‘procedural justice’ feature markedly in this chapter.
4.3.1. Normative Ethics and Relevant Schools of Thought

The discipline of moral philosophy—or ‘ethics’, as it is commonly known—has emerged as an influential school of thought with regard to how allocation of scarce resources should be undertaken. A number of viewpoints within normative ethics exist regarding how moral questions should be answered. The relevant viewpoints for health and particularly for priority-setting include:

- **Deontology**—those theories that argue for decisions to be made considering one’s duties and others’ rights. In these theories, it is argued that the individual is an end and not a means. These contrast with consequentialism because it is the *means* or *motives* that justify the action, not the *end*. A noteworthy deontological theory is Immanuel Kant’s theory that situates morality within humans’ ability to reason, and maintains that there are incontrovertible rules (Kamali et al. 2000).

- **Consequentialism**—the school of thought whereby the moral justification of an action lies in the outcome of the action. A prominent consequentialist theory is utilitarianism, which is discussed later in this thesis.

- **Communitarianism**—recognises human beings as social beings and therefore emphasises social relationships and common values.

These viewpoints operate in different ways and at different levels in the priority-setting decision context; therefore, it is important to consider the influence of these different theories with regard to optimal resource allocation. In addition, it is important to note that they conflict with one another and thus are likely to result in differing definitions of what fair priority-setting should involve. The usefulness of these normative frameworks can only be understood in relation to one another and by acknowledging that no one theory suffices as a stand-alone approach to guide priority-setting (Gould 2008).
Historically, the ethical influence in health has presented itself in a deontological fashion in the context of the doctor–patient relationship. In this regard, ethical codes of conduct have been the manner in which the interaction between the doctor and patient has been mediated to ensure that autonomy of the patient is respected, there is no harm to the patient and the patient receives the best possible care. This is a reflection of the principles of autonomy, beneficence, non-maleficence and justice put forth by Beauchamp and Childress (1998). At this level of interaction or decision-making, the doctor is duty bound to do the best for his or her patient. Therefore, priority-setting at this level is guided by largely deontological concerns.

In contrast, most healthcare systems at the macro level seek to improve the overall health of the populations they serve. This concern for maximising health gain is deeply rooted within consequentialist concerns, particularly utilitarian ones. It has been conducted to maximise health gains for a given set of finite resources. Therefore, this is usually concerned with available funds for those interventions or people for whom there is great capacity to benefit. These consequentialist concerns may conflict with the deontological concerns at the micro level of decision-making. In addition, they conflict with another deontological imperative—the rule of rescue that is often encountered in situations of imminent death.

A review of the broader priority-setting literature highlights these tensions. Tensions were reported in the UK between the deontological constraints on priority-setting at the individual level and the consequentialist concerns at the macro level, following the reforms in the NHS that led to the purchaser–provider split (Smith 1992). He notes that these manifested as a mix of the Rawlsian difference principle\(^\text{15}\) and utilitarianism, such

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\(^{15}\) Rawls’s theory of fairness proposes two principles of fairness: 1. each person has an equal claim to a fully adequate scheme of equal basic rights and liberties that are to be guaranteed their fair value. 2. Social and economic inequalities are to satisfy two conditions: (a) They are to be attached to positions and offices open to all, under conditions of fair equality of opportunity, and (b) They are to be to the greatest benefit of the least advantaged members of society (Rawls 1993, pp. 5–6.). Principle 2(b) refers to the difference principle.
that basic care is provided as a duty with CBA determining the treatment choices. He notes that this left the difficult decisions of rationing to the clinicians at the micro level. These findings have been echoed by others (Ten Have 1988).

Harvey (1996) also argues that in a setting of increasing resource scarcity, a pure deontological basis for priority-setting is fiscally unsustainable. He also notes that neither moral base is sufficient to address the issues of priority-setting within a health system. He thus suggests a unifying ethical model in which deontology is lexicographically inferior to consequentialism. 16 He provides an economic argument for this and notes that in a society seeking to maximise societal welfare, neglecting the process utility arising from the deontologically constrained doctor–patient relationship is not maximising utility.

4.3.1.2. Communitarianism Versus Libertarianism and Individual Autonomy

Tensions also arise between the macro level and micro level of decision-making, from the conflicts between substantive communitarian goals of promoting social values and the common good of all, and the importance of individual autonomy and liberties at the individual level. These tensions increasingly came to the fore with the growth of public health, which is primarily concerned with the prevention of disease at the level of the public or community, rather than at the individual level (Faden & Kass 1991; Faden & Kass 1998).

With the advent of prevention interventions such as vaccinations, screening for infectious diseases, partner notification and contact tracing, the communitarian goals of promoting public health by preventing disease transmission have tended to conflict with individual rights and autonomy, as some interventions request violation of patients’ privacy. Interventions that quarantine infectious people also constrain their individual liberties for

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16 To say that a principle is lexicographically inferior to another is to imply that, in any situation, the superior principle will invariably dominate or override, conflicting with the decisions that arise from the inferior principle.
the good of the community. This has important implications for determining what polices to implement and how they should be implemented.

4.3.2. Justice: Distributive and Procedural

At this point, this paper turns to the fundamental concept of justice. This is important because, as has been stated above, the fact that there will be gainers and losers in priority-setting provides a strong imperative for fairness in the way resources are allocated and in the way decisions are made. An appeal to fairness is an appeal to justice. Upshur et al. (2013) note that justice, in its most fundamental form, is concerned with issues of fairness and equality. This has also been argued elsewhere (Rawls 1958). Thus, the concerns for fairness in priority-setting are an appeal to distributive and procedural justice. These are discussed in turn in this section.

4.3.2.1. Distributive Justice and Equity

A number of theories of justice arising from the ethical literature have been identified and discussed in the literature (Gillon 1994; Macklin 2004; Marchand, Wikler & Landesman 1998; Pereira 1989; Stein 2012; Williams & Cookson 2000). These theories of justice provide normative guidance on what should be distributed, how it should be distributed, and the criteria for judging fair distribution. The major theories are briefly described here, along with the limitations of each. The issues that arise from the plurality of these principles and the efforts to resolve these tensions are also discussed.

**Egalitarianism:** The central tenet in egalitarian theories is that every individual is of equal fundamental social worth and thus should be treated equally (Beauchamp 1999; Stein 2012). As such, benefits accrued should be accrued equally to all within a society. Egalitarianism is the prevalent ideology in most health systems that are publicly funded.
and characterised by ‘solidarity’\textsuperscript{17} and ‘collectivism’.\textsuperscript{18} This ideology underlies the preoccupation of most empirical work with distributive justice in health.

A key limitation of the theory is that it implies that equal, but poor, health is a more desirable situation than one in which some people have good health and others do not. In other words, the theory is insensitive to the capacity to benefit (Stein 2012; Williams, Robinson & Dickinson 2011). In a related vein, a common criticism against this theory is that in seeking to achieve equal health for all, the principle may require ‘levelling down’ the health of those who are in good health in instances in which no increment in health can be achieved for the less healthy (Brock 2002; Mason 2001; Parfit 1997; Temkin 2000). More recently, though, it has been argued that this weakness can be overcome in a population measure that combines egalitarianism with two other principles, as discussed below. These include utilitarianism or health maximisation and prioritarianism (Norheim & Asada 2009).

Inspite of these objections, the theory has spawned a number of notions or definitions of equity, which will be discussed in Section 4.3 below.

\textbf{Utilitarianism} seeks to promote the greatest happiness/utility.\textsuperscript{19} Thus, the right policy is the one that results in the greatest good. Utilitarianism is thus very much a consequentialist theory. This has been discussed extensively above.

This theory has also enjoyed great application in many countries in which efficiency is a major goal of the healthcare system. Efficiency in this case refers to achieving the maximum benefit from a given set of resources, and not mere prevention of financial waste. The National Institute for Health and Care Excellence in the UK (McMahon, Morgan & Mitton 2006; Walker, Palmer & Sculpher 2007) and the PBAC (2008) are

\textsuperscript{17} With regard to health, this principle refers to commitment to provide priority to healthcare services to the most disadvantaged in society. It is implemented by a selection process by giving priority to those who are in the worst situations in terms of ill health and disease (Mbulaiteye et al. 2002).

\textsuperscript{18} Collectivism is any philosophic, political, religious, economic or social outlook that emphasises the interdependence of every human being in a society or civilisation.

\textsuperscript{19} It should be noted that various interpretations exist, such as the ‘greatest happiness’ versus the ‘greatest happiness for the greatest number’.
examples of national priority-setting entities that have explicitly embraced the principle of health maximisation.

One criticism is that utilitarianism has no way of adjudicating between options that result in small increments in happiness for a large number of people in society, and those that would result in large increases in happiness for a small number of people (Macklin 2004). It is essential to note that this theory does not differentiate between people—in other words, a health or utility increment counts for the same, regardless of to whom it accrues. Others criticisms include monism and the fact that benefits accrued are weighted equally, irrespective of need, and that interpersonal differences, such as age, are ignored.

**Libertarianism** has been defined above. The basic premise of this theory is that the distribution of benefits or goods should be done by the free market (Nagel 1995). Everyone in the community is entitled to the property that they have as long as it has been acquired justly (such as through earnings or inheritance). As such, health should be distributed in the free market based on willingness and ability to pay. This is a procedural theory (Pereira 1989; Williams & Cookson 2000) because the definition of whether or not a distribution is desirable is based on the path used to reach it.

The limitations of this theory arise from the fact that the principle is likely to lead to allocations that many in society would judge as inequitable. For instance, according to this principle, ill health due to genetic disorders or congenital abnormalities is just because it was inherited. Similarly, inequalities in access to healthcare or in health due to differences in earning power would also be considered just (Pereira 1989). The rejection by society of WTP as the primary mechanism for accessing care is an indication of the rejection of the allocation of resources based on this principle.

Other less prominent but nevertheless relevant theories that influence resource allocation include:

- **Prioritarianism** which states that in times of resource scarcity, priority should be given to the worst off. It arises from the levelling down objection to strict
egalitarianism (1997). The fact that it emphasises improvement of overall wellbeing has resulted in the consideration by some that this is a weighted variant of utilitarianism (Stein 2012). Some have even referred to it as weighted utilitarianism. It also has an egalitarian tendency to give priority to improving the welfare of the worse off; however, in this case, it is not an absolute priority.

- **Maximin** is a theory developed by the philosopher John Rawls (1974) that seeks to maximise the position of the least well off in society, instead of maximising net benefit in society. As Rawls states, a set of basic or primary goods, including freedom, should be distributed not at the discretion of the individual themselves, but by society. This distribution occurs behind a veil of ignorance in which all individuals decide on the distribution of these goods without knowing how they would be affected by the decision (whether they lose or gain).

- **Desert-based theories** are those that state that a just distribution is one in which the benefits and burdens are distributed on the basis of the actions that created them, that is, people should receive their ‘just deserts’. In the health setting, this theory holds people responsible for their role in causing illness (Buyx 2005; Buyx & Prainsack 2012; Buyx 2008). A converse principle of **reciprocity** seeks to reward those who do more for society, such as blood donors, research participants, organ donors and the like (Persad, Wertheimer & Emanuel 2009).

As many have noted in the literature, these principles of justice offer a useful way to evaluate and guide decision-making for health. However, it is clear from the brief review above that they will result in differing priority-setting outcomes. Most importantly, many authors have also noted that each theory is insufficient in its own right to guide priority-setting. The next section explores the key ethical issues that have followed on from these varying normative positions.

4.3.2.2. **What should be distributed?**

Equity is a common goal of healthcare systems in developed countries, global health institutions and many countries in RLS. Equity has been defined in the literature in many
ways. Whitehead (1992) proposes the following definition of ‘inequity’: ‘It refers to differences which are unnecessary and avoidable but, in addition, are also considered unfair and unjust’.

Therefore, an equitable situation is one in which these differences do not exist. The key issues are that these differences are unnecessary and are avoidable. More recently, new definitions of inequity have been developed. Starfield (2001) defines equity in health in the following manner: ‘Equity in health is the absence of systematic and potentially remediable differences in one or more aspects of health status across socially, demographically, or geographically defined populations or population subgroups’. This redefinition was an attempt to aid research and monitoring of equity, given that ‘unfair’ and ‘unjust’ are difficult to measure. Its appeal also arises from the fact that it incorporates notions of fairness by speaking of systematic differences. It addresses Rawlsian concerns that the worst off are not sacrificed, and a broader concept of health is defined.

The different definitions above indicate an aversion to inequalities or preventable differences. This aversion prompted the famous philosopher Armatya Sen (1980) and many others to ask the question: equality of what? As one ethicist states:

Equality is a popular but mysterious political ideal. People can become equal (or at least more equal) in one way with the consequence that they become unequal (or more unequal) in others … It does not follow, of course, that equality is worthless as an ideal. But it is necessary to state, more exactly than is commonly done, what form of equality is finally important. (Dworkin 1981) [Emphasis added]

Outlined below are different notions of equity or fairness that have been proposed in terms of what should be reallocated and aimed at achieving. Even though the definitions above identify health as the important distribuendum, different ideas have been put forwards by some as possible candidates. These include notions of equity that are encountered in the literature.
Mooney (1987) argues that equity should be concerned with achieving equal access to healthcare services. He and others argue that this should be conceptualised and measured in terms of the costs that patients face when receiving treatment, instead of focusing on use as a proxy for access (Mooney et al. 1992). However, Culyer and Wagstaff (1992, 1993) argue that a focus on costs alone ignores the other barriers to access, such as lack of knowledge of the need for care or inability to desire care. They argue that access should be conceptualised with regard to use of care, since this reflects more what policymakers mean when they talk about access in policy documents and also because analysis of low use would best show the barriers to access that policymakers would be able to address.

In addition, the notion of achieving equal access to healthcare services has been criticised on the grounds that focusing on healthcare ignores other important determinants of health. It has been demonstrated that social factors other than healthcare—such as level of education, genetics and income levels—play a large role in the development of disease (Marmot 2005; Marmot 2003; Wilkinson & Marmot 2003). This notion of equity as ‘equity of access’ is very restrictive.

Sen (2002) also notes that focusing on achieving equality of access to healthcare ignores the fact that individuals vary in the manner in which they are able to respond to healthcare. In his conception of equity, it is argued that distribution should be according to need. However, ‘need’ can be defined in many ways, all of which would result in different distributions of healthcare and health. Need can be defined in terms of the severity of the illness or risk factor, such as DALYs due to illness, or in terms of the expenditure required to manage the condition (Culyer & Wagstaff 1993).

However, none of these definitions enable determination of how much resources should be allocated or the capacity to benefit. Needs-based allocation based on severity of disease could result in a bottomless pit of expenditure for which there are few returns. ‘Need’ can also be defined as ‘capacity to benefit’. While this is an improvement, it also ignores the
important issue of how much must be allocated. In addition, this definition focuses
narrowly on healthcare and does not include the other social determinants of health.

**Equality of Health**

Equality of health is aimed at achieving equal health status for everyone, as far as that is
possible (Culyer & Wagstaff 1993). Thus, this notion seeks to eliminate all systematic and
potentially remediable differences in health status. Culyer and Wagstaff (1993) advocate
for this notion of equity because health is essential for individuals to flourish. In addition,
they argue that the demand for healthcare is a derived demand—healthcare is consumed
only as far as it is anticipated to improve health. This notion can be criticised based on the
fact that health is just one element in the range of factors that are essential for an individual
to flourish. Thus, other notions of equity denoting an alternative distribuendum have been
proposed. These include the following.

**Equity as Equality of Choice**

Le Grand (1987, 2002) rejects notions of equality of health on the basis that they do not
consider the preferences of different people and allocations according to need (discussed
below) because they do not consider desert. He thus proposes an alternative concept of
equity in which differences in health resulting from differences in the choices made by
individuals with the same choice sets are deemed equitable. Under this notion of equity,
differences in health that arise from factors beyond the control of the individual are
inequitable.

Le Grand thus argues that the concern should be with ensuring that individuals have equal
choice sets available to them. Thus, if an individual armed with similar resources and
knowledge of health to another chooses to smoke and falls ill as a result of this choice,
then that individual’s illness is equitable. The individual who falls ill despite not smoking
has inequitable ill health. Le Grand argues that healthcare treatment should not unfairly
treat the individual who is ill as a result of poor choices. He holds that care should be
provided, but that the financing of the care should reflect the effect of the individual’s choices. For example, all smokers should pay a tax that could be used to finance care for smokers and non-smokers alike. In that manner, smokers and non-smokers who fall ill would receive treatment irrespective of the cause of illness.

This approach has been criticised mainly because it assumes that individuals have perfect information regarding the consequences of their choices (Pereira 1989). The fact that society is unlikely to ration healthcare based on the responsibility of different individuals’ actions is implicit rejection of this notion of equity. It seems as though Le Grand’s call for equal treatment of all persons tempered by inequality with regard to financing is a response to this value judgement.

*Equity as Equality of Opportunity for Welfare*

Equity as equality of opportunity for welfare holds that a distributional scheme treats people as equals when it distributes or transfers resources among them until no further transfer would leave them more equal in welfare (Arneson 1989; Cohen 1990; Cohen GA 1993).

*Equality of Resources*

Equality of resources holds that people are treated as equals when distributing or transferring resources, so that no further transfer would make their shares of the total resources more equal. Dworkin (1981) admits that this is an abstract concept stemming from the fact that there are different interpretations of what welfare is; therefore, its application would differ with each situation (1981; Roemer 1986). This concept has been criticised for implying that resources should be allocated to the worst off, irrespective of relative benefit or capacity to benefit. In addition, this notion of equality of resources ignores the important fact that individuals differ in their capability to transform these resources into functionings.
Equity as Fair Equality of Opportunity

In this conception of equity, Norman Daniels (1985, 2001) extends Rawls’s notion of fair equality of opportunity (FEO) to healthcare. He argues that healthcare, as well as other social goods, are important for attaining the normal opportunity range of individuals, which includes roles and positions that they aspire to attain. Differences in health matter because they can lead to different opportunity ranges. Thus, for two equally talented and skilled individuals, the distribution of healthcare should be in a manner that affords them equal opportunity to attain these positions. This might not require equal access to healthcare, since their healthcare needs may differ. In a recent reformulation of this theory, Daniels (2001) argues for a regard to the redistribution of social determinants of health, rather than healthcare itself. This has been criticised because decreasing inequalities in social determinants of health does not necessarily imply a reduction in inequalities in health.

It should be noted that the FEO concept does not differentiate between different notions of health or types of healthcare. It does not provide a way of making trade-offs in decision-making between health and other social goods that are important for attaining the normal opportunity range. The notion of opportunity costs is absent in this theory.

Equity as Equality of Capabilities

This theory was discussed in section 4.1.2.4 as an alternative formulation of benefit, and hence an alternative approach to economic evaluation. In ethical debates regarding priority-setting it has also emerged as an alternative conception of equity in which the focus is not on equalising health, healthcare or resources, but on achieving equality in the capabilities that people have to be able to function normally (Sen 1980, 1985; Sen 1993; Sen 2002). The distribuendum is thus capabilities. This notion has been promoted by Sen and others.
What is not clear is the position that health holds in this theory (Weinstock 2011). It is unclear whether health and healthcare are merely instrumental in the attainment of capabilities, as is the case with the FEO approach, or whether capabilities such as cognitive abilities are essential for good health, in which case the objective of promoting equality of capabilities is to promote health. In addition, as mentioned earlier, this theory leaves open to interpretation what range of capabilities can be conceived as relevant. This makes its use in priority-setting impractical.

Mooney argues that equity is a social and cultural construct that is likely to vary across different cultures. Therefore, he does not believe in a universal notion of equity. He argues that it should be up to the citizens of a community to define equity for the distribution of their health services (Travassos & Mooney 2008).

**Summary**

The above review of the ethical issues regarding what should be distributed and how it should be distributed demonstrates the following points:

- No single theory of justice or principle therein is sufficient as a stand-alone to guide the tough choices of priority-setting.
- The existing theories of justice and concepts of equity necessarily conflict with one another, and in some cases may be mutually incompatible.
- There is currently no consensus regarding which principles should guide resource allocation for health.
- All these different conceptions of equity would undoubtedly result in different outcomes of priority-setting. However, they do share one thing—the concern for the equal treatment of equal people (horizontal equity) and the unequal treatment of unequal people (vertical equity).

In view of these realities in the debate on distributive justice, an appeal to procedural justice has been made to guide priority-setting and foster legitimacy of priority-setting decisions. However, before the discussion on procedural justice, it is important to note
that there recently have been suggestions of ‘pluralistic formulations’ of moral reasoning to guide priority-setting for health. For instance, Norheim and Asada (2009) suggest a pluralist theory that combines egalitarianism with prioritarianism, as well as average health, in order to overcome the greatest objection to egalitarianism: the levelling down objection. They argue for the use of an achievement index that is always sensitive to inequalities in health in order to average health and assign priority to the worst off as a means of combining the three principles of justice.

4.3.3. Procedural Justice: Fair Processes

Concerns for procedural justice in light of the failure to reach consensus on what moral principles should guide priority-setting have been formulated in many ways. Some economists have argued for the need to include fair processes for priority-setting (Mooney 2003; Wiseman & Jan 2000). In addition, it has been argued that in healthcare rationing where there may be diametrically opposed agendas, conflict resolution may be achieved by recourse to procedural justice, since parties may accept unfavourable outcomes if they are perceived to arise from a process that has been agreed upon in advance (Anand 2001; Wailoo & Anand 2005). Other rationales for procedural justice in priority-setting include the fact that health outcomes of health interventions are usually uncertain (Wailoo & Anand 2005). Thus, procedural justice is important in agreeing what must be adopted in light of the uncertainty.

Thus far, the arguments advanced have been seen in light of the instrumentality of procedural justice—that it enables the legitimacy of decisions based on substantive principles such as those discussed above, or the procedures lead to better outcomes. However, it has been demonstrated in the literature that there is inherent value in procedural justice (pure procedural justice) in priority-setting (apart from the fact that it leads to better outcomes). This implies that people will accept any priority-setting outcomes only if there has been a fair priority-setting process (Dolan et al. 2007; Wailoo
& Anand 2005). This stems solely from a concern for procedural justice. In this sense, pure procedural justice is lexicographically superior to instrumental procedural justice.

Perhaps the biggest proponent of procedural justice (pure and instrumental) is the ethicist Norman Daniels (2000b). Daniels argues that, in the absence of consensus on moral principles for priority-setting, the priority-setting processes should be marked by four conditions that will foster legitimacy and fairness. These four principles were discussed in chapter 3 (Daniels 2000a; Daniels & Sabin 2008).

The framework has been widely adopted in many jurisdictions for the purposes of evaluating priority-setting processes and improving the conduct of these processes (Cooper et al. 2005; Jansson 2007; Maluka et al. 2011; Sofaer et al. 2009).

Many see this recourse to procedural justice as a replacement of substantive principles for priority-setting (Ashcroft 2008; Williams, Robinson & Dickinson 2011). Sabik and Lie (2008a) criticise the framework as being very vague. They argue that this vagueness enables processes to enter the fair category when they would, under more specific conditions, be unfair. In addition, using the appeals conditions as an example in three settings (Norway, the UK and the US), they show that the requirement that a priority-setting process have an appeals mechanism does not explain exactly how this is to be implemented. In addition, they demonstrate through these examples that any attempt to specify how the appeals mechanism and indeed any other condition in the framework should be implanted requires recourse to consensus on how conflicts in moral substantive principles will be balanced.

In the recent past, a number of economists have investigated the importance of procedural justice in priority-setting. For example, Wailoo and Anand (2005) determined six factors that are important for fair processes, based on the literature on procedural justice in the legal arena. These include voice (ability to express oneself), consistency in the procedures for decision-making, transparency of the process, accurate information used for making decisions, lack of vested interests by decision-makers, and impartiality. Empirical work
conducted by Wailoo and Anand shows that the general public is in favour of fair processes for decision-making based on these principles (Anand 2001). More recently, the relative importance of each of these factors has been determined by a team of researchers in the UK. They used a sample of decision-makers and the general population (Dolan et al. 2007) and found that the public valued accuracy of information, impartiality and transparency more highly than the other components. They also found that procedural justice was valued for both its instrumental value and its inherent value.

The above review shows that not only are there unresolved issues regarding what the appropriate distribuendum is and the manner in which it should be distributed, but also what the processes should be to provide a way to resolve these conflicts. For now, what is clear is that a priority-setting process should not only consider these principles, but should also pay attention to procedural justice. Also clear is that a fair process should at least consider issues of transparency, provide the ability for everyone to express themselves, be devoid of vested interests and be based on accurate evidence (as far as this is possible). The next section considers how the ethical issues raised above relate to the issue of priority-setting in RLS and particularly in HIV/AIDS.

4.3.4. Ethics and Priority-setting in RLS and HIV/AIDS

4.3.4.1. Ethics in RLS

Chapter 3 discussed the role of the mega level of decision-making in priority-setting for health and HIV/AIDS in RLS. Thus, a review of the ethical issues regarding priority-setting in this context ought to include the issues at this level and how they affect distributive concerns at the macro and lower levels. The ethical issues that have dominated the literature in global health include those concerned with the conduct of research in LIC and the respect for the rights of participant. Most authors attempt to examine and provide guidance on the gross inequalities in health outcomes between developed countries and LICs (Green et al. 2013; James 2005; Kirby 2008; Merson 2006; Slutkin et al. 2006).
It is within this area of addressing the gross inequalities in health outcomes that most of the guidance relevant to priority-setting traditionally arose. WHO commitments such as ‘Health for All by the Year 2000’ (World Health Organization 1981) and ‘Universal Health Care Coverage’ play a huge role in the way priorities are set in RLS. These commitments are usually strongly influenced by recognition of the need to address these inequalities. Implicit in these statements is the desire for distributive justice. For instance, the Global Strategy for Health for All by the Year 2000 includes the following statement:

What does health for all mean? It means simply the realization of WHO’s objective of the ‘attainment by all peoples of the highest possible level of health’, and that as a minimum, all people in all countries should have at least a level of health that they are capable of working productively, and of participating actively in the social life of the community in which they live. (World Health Organization 1981, p. 15)

Implicit in this statement are egalitarian concerns for equal health. There is a desire to maximise health gain, which is a maximisation or utilitarian principle. The qualification at the end of the statement—in the event that these two objectives cannot be attained—is an appeal for a decent minimum level of health for all. This statement thus acknowledges prioritarian concerns that seek to improve the health of the worst off and the maximin principle in the face of gross inequalities in health.

More recently, the commitment to Universal Health Coverage by WHO and its member states is a call to provide equal access to healthcare (Evans & Etienne 2010). While health financing arrangements fall outside the scope of this thesis, the example above and the one before illustrate that concerns for distributive justice are important even in priority-setting at this level. Further, distributive justice affects the priority-setting concerns and ethical issues that are tabled during macro level discussions of priority-setting in RLS. Thus, many countries, including countries in SSA, demonstrate a concern for distributional matters. In particular, the use since the early 1990s of the resource allocation formulae (RAF) that replaced the historical funding models in countries such as Ghana, Zambia, and Uganda, reflects a desire to distribute resources according to need (Bossert, Chitah & Bowser 2003; Chitah & Masiye 2007) (Orem & Zikusooka 2010).
Examining the National Department of Health Strategy for South Africa shows that decision-makers in South Africa are interested in equity and efficiency. With regard to equity, this is couched in the notion of equitable access to health services. Thus, at the macro level in this setting, the implicit ethical principles are utilitarianism and egalitarianism with regard to equal health access (Department of Health 2010). In addition, South Africa’s Medium Term Strategic Framework (to which the health strategy is aligned) states that one of its goals as ‘improve the health profile of all South Africans’ (Minister in the Presidency 2009). This again reinforces the normative principles of utilitarianism and egalitarianism. It also shows that normative principles at this level are affected by priority-setting process conducted at higher levels. In this case, the transfer of principles is from societal (government) level to health sector level.

In Uganda, a similar, albeit increasingly explicit, regard for equity and efficiency can be seen. Ssengooba et al. (2006) show that in producing the Health Sector Strategic Plan for the period 2000/2001 to 2004/2005, stakeholders did not explicitly define clear equity indicators. However, the goal of vertical equity is implied in statements such as:

The overall purpose of the Plan is to reduce morbidity and mortality from major causes of ill health in Uganda and the disparities therein, as a contribution to poverty eradication and economic and social development of the people. (Government of Uganda 2000)

The Health Sector Strategic Investment Plan 2010/2011 to 2014/2015 developed is more explicit in its regard for distributive justice, as shown below in extracts from the document (Government of Uganda 2010):

**Goal**
To attain a **good standard of health** for all people in Uganda in order to promote a healthy and productive life

**Mission**

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20 It is important to note that, in most cases, these utilitarian concerns are not strictly about maximising benefit, but may embody the lesser—but nonetheless worthy—goal of satisficing. Satisficing, as opposed to maximisation, involves achieving an acceptable level of health, rather than the maximum health benefit. Hauck, Goddard and Smith (2003) note that this practice stems from the fact that priority-setting is a costly exercise that imposes huge managerial burden. Given these high costs, governments resort to incremental decision-making in which satisficing functions better than maximisation.
To provide the **highest possible level of health** to all people in Uganda through promotion, prevention, curative and rehabilitative health services at all levels. (Government of Uganda 2010, p. 38) [Emphasis added]

In addition, regarding the social values embodied in the development of the plan, the document explicitly states: ‘Equity: Government shall ensure equal access to quality care according to needs for individuals with the same health conditions’ (Government of Uganda 2010, p. 39). These statements show a commitment to health maximisation and egalitarianism, both with regard to equal health and equal access to health services.

Despite this explicit statement, the government has been criticised for paying ‘lip service’ to equity concerns by emphasising efficiency (health maximisation) and relegating equity to a distant second place. It is argued that this has resulted in a highly inequitable distribution of health outcomes in Uganda (Barugahare 2011).

### 4.4. Summary of Key Issues for the Framework

This chapter has reviewed the broader literature on normative guidance from ethics on priority-setting. The key issues for the priority-setting approach for HIV prevention in RLS are:

- The fact that priority-setting decisions will almost invariably result in gainers and losers makes a strong case for consideration of fairness. The discipline of ethics provides normative guidance on how this can be defined and achieved for health.
- The normative ethics guidance offers a number of useful substantive principles that provide different priority-setting outcomes. In addition, different substantive principles predominate at different levels of decision-making, which furthers the tension that results from the multiplicity of these principles. The tension that exists above extends to the notion of distributive justice: who gets what and how should it be distributed? No one notion of equity has been shown to be correct, and each notion results in different priority-setting outcomes.
- Following the recognition that priority-setting based on these substantive principles alone is insufficient in resolving the conflicts that arise within priority-setting, recourse to procedural justice has emerged as a potential solution. This
recourse to procedural justice does not exclude the need for substantive principles, but rather provides a mechanism for legitimising the decisions that result from these principles.

- It is important to note that ethical principles at the mega level affect the priority-setting process at lower levels, and will affect how resources are allocated and who benefits and loses. This is especially important for the priority-setting framework to incorporate in order to achieve legitimacy of the decisions for HIV/AIDS.

- Ethical guidance has emerged as very important for priority-setting for HIV/AIDS. This is manifest in the clash in ethical principles at different levels of decision-making, and the search for substantive principles to guide fair resource allocation for HIV/AIDS at the mega and macro levels. These are important not only for determining what should be distributed, but also for who gains from the priority-setting decision. Here too the recognition that priority-setting should include both substantive principles and procedural justice has emerged as key.
Chapter 5: Lessons from Empirical Experience

5.1. Introduction

In an attempt to address the growth in healthcare expenditure and demand for healthcare services in the face of resource scarcity, a number of regions have undertaken priority-setting exercises at a national level. These include Oregon and other areas in the US, the UK, New Zealand, The Netherlands and Nordic countries, including Norway and Sweden. The visibility of these endeavours in these settings, particularly in Oregon, stimulated a lot of priority-setting debate, as mentioned in Chapter 3. These experiences have been described extensively in the literature (Carter 2001; Ham C & Coulter A 2000; Ham & Robert 2003; Williams, Robinson & Dickinson 2011). Despite the fact that this thesis is focused on priority-setting in LICs, Section 5.2 of this chapter provides a brief description of the priority-setting approach in these settings, with the aim of extracting important lessons from their experience that could be important to priority-setting in developing countries.

Section 5.3 is devoted to describing the priority-setting situation in developing countries, with Uganda as the particular example. Unlike the experiences in developed countries described in Section 5.2, there is very little information regarding explicit priority-setting or priority-setting reform in LIC (Kapiriri 2003; Kapiriri 2006). The most visible venture in priority-setting in the context of LICs to date has been the Global BOD study (Lopez 2006; Murray & Lopez 1997) and the flow-on effect of determining Essential Health Care Packages (EHCPs) in these countries. This section will draw on the descriptions of priority-setting for health in Uganda and other LICs of relevance in the published literature. In addition, the priority-setting experience for HIV/AIDS in Uganda will be described. There is currently only unpublished evidence regarding this. However, the description of the process is drawn from the empirical work conducted as part of this thesis, which is presented in Appendix 1. As in Section 5.2, the aim is to inform the ideal priority-setting approach for HIV prevention in Uganda.
Last, a review of the empirical enquiry into priority-setting for LICs is also presented in Section 5.3 of this chapter. The aim is to demonstrate which priority-setting approaches have been developed and tested in this setting, as well as to extract important issues that the framework developed in this thesis can address.

5.2. Empirical Experience of Priority-setting in Developed Countries

5.2.1. Synopsis of Priority-setting in Developed Countries

In Oregon, the state senate resolved to ration healthcare by reducing the number of services available to those who were eligible for Medicaid, and by using the cost savings to increase cover for those eligible, but as yet uninsured (Coast 1996; Dixon & Welch 1991b; Fox & Leichter 1991). To do so, a priority-setting exercise using CUA was used to rank 1,600 condition treatment pairs in decreasing order of cost-effectiveness. Thereafter, based on the funding available, a distinction was made between those services that would be funded and those that would not. The list generated using this approach was rejected by the government and the public because of the counterintuitive rankings it produced (Carter 2001; Eddy 1991; Fox & Leichter 1991; Hadorn 1991b). For instance, some non-life-saving interventions, such as dental caps, were ranked higher than some life-saving interventions, such as salpingectomy for ectopic pregnancy (Eddy 1991; Hadorn 1996a; Hadorn 1991b).

A second attempt was made to reprioritise by arranging the condition/treatment pairs within 17 broad categories that were determined based on severity or importance of condition and whether or not the services could be adequately classified in a condition/treatment pair. These 17 categories were ranked in order of importance using three attributes (‘value to society’, ‘value to the individual’ and ‘importance to healthcare package’) of differing relative importance, resulting in nine essential services, four very important services and three services that could be left to the individual (Carter 2001; Fox & Leichter 1991). The condition/treatment pairs were ranked in these categories based on the net benefit they provided. Subsequent ranking was undertaken by the commissioners based on their professional judgement to ensure that the ranking made sense intuitively.
This list was submitted for approval to the government following a costing exercise. However, it was rejected because it was felt that the preference weights used in the net benefit calculation discriminated against the disabled. Subsequent reprioritisation, in which the preference weights were removed, resulted in a third list that was approved by the government on the condition that the list would be subjected to ongoing review.

This endeavour led to an increase in the number of people enrolled under Medicaid. Subsequent endeavours have involved reprioritisation to include new items that were off the list, the development of clinical guidelines to enable the use of cost-effective treatments at clinical level, and the development of new categories by the OHSC in which the condition/treatment pairs are ranked (Ham 1998).

In New Zealand, a different manner of priority-setting was used following the rejection by the public and National Advisory Committee on Core Health and Disability Support Services\(^{21}\) of the Oregon style of setting priorities because they felt it was impractical, arbitrary, did not consider variations in individuals and regions and was culturally insensitive. Instead, the Core Services Committee (CSC) chose to identify broad areas of priorities—the general list approach (Coast 1996; Cumming 1994; Dixon & New 1997; Ham C & Coulter A 2000). The assumption was that the current set of services comprises the core, but that, with time, the core would change in order to reflect the priorities determined. Initially, the committee intended to combine the general positive list of services with a short negative list of services that would not be funded; however, this was abandoned two years later. The CSC decided that instead of a list, it would describe the circumstances when care would be made available and when it would be restricted. The rationale for this was that there are no interventions that are wholly cost ineffective, but they may be cost-effective for some populations who would otherwise not benefit if the interventions were excluded.

In addition to the core list of services, in consultation with the public, the CSC developed broad service areas that would become priorities, including mental health and substance

\(^{21}\) Hereafter referred to as Core Services Committee (CSC).
abuse services, children’s health services and integrated community care services. They also developed supplementary services, including emergency ambulance service, habilitation/rehabilitation services and hospice care (Edgar 2005; Ham C & Coulter A 2000). The CSC also used consensus conferences to determine how priorities would be set within services. These conferences have since been used to develop guidelines that provide clinical guidance in ‘usual circumstances’ and give the public an idea of what services to expect. Through the development of these guidelines, the role of CUA-type analyses and PBMA has been promoted (Ashton, Cumming & Devlin 1999, 2000; Hadorn 2010; Ham & Robert 2003).

The Netherlands, like New Zealand, rejected the Oregon style of priority-setting. The Dunning Report was commissioned by the government to provide guidance on how the government could determine a package for universal access. This recommended four criteria that would be used to exclude services (Ham C & Coulter A 2000; Ham & Robert 2003):

1. Is it necessary care (from a community point of view)?
2. Has it been demonstrated to be effective?
3. Has it been demonstrated to be efficient?
4. Can its payment be left to the responsibility of the individual?

The community perspective was given greater priority than the individual perspective; thus, funding for in vitro fertilisation (IVF) would be left to the responsibility of the individual, since it is necessary at the individual level, but not at the community level.

Like New Zealand, the government decided not to exclude services from the package. Instead, the government resolved to use these criteria to select services at the margin for inclusion in the package, such as IVF, dental care, sporting injury treatments and contraception (Ham & Robert 2003). However, the public outcry following their exclusion resulted in their inclusion, albeit with some restrictions, such as the inclusion of IVF in the healthcare package only for women over 40 years and funded for only three opportunities.
In addition to definition of the basic package, the Netherlands uses a Medical Technology Assessment system to determine whether new technologies of uncertain cost-effectiveness should be publicly funded (Berg, Van Der Grinten & Klazinga 2004a, 2004b). Medical Technology Assessment is based solely on economic evaluation, but is by no means the only input into the decision-making process. As such, it does not always determine the outcome of the priority-setting process (Ham & Robert 2003; Marc & Van Der 2001). Last, like Oregon and New Zealand, the Netherlands has adopted the use of clinical guidelines to determine the appropriate use of services. As Gritten and Berg note, CEA is also of growing importance at this level.

The priority-setting approach in the Nordic countries was initially concerned with the development of principles that would guide the selection of priorities (Ham C & Coulter A 2000; Holm 1998). In Norway, Finland and Sweden, priority-setting endeavours consisted of determining levels of priority categories based primarily on the severity of the condition and the type of service. For example:

- Priority Group 1: Care of life-threatening acute diseases, care of severe chronic diseases, palliative care and care in final stages of life, and care of people with reduced autonomy
- Priority Group 2: Prevention and habilitation/rehabilitation
- Priority Group 3: Care of less severe, less acute and less chronic diseases
- Priority Group 4: Care for reasons other than disease or injury.

Prioritisation within these groups was to be made based on three ethical principles that were identified by the Swedish Parliamentary Commission through a participatory approach involving members of all political parties. The three principles include human dignity, solidarity and cost-effectiveness. Unlike the Netherlands, these were not used to exclude services, but to guide choices (Carter 2001; Ham C & Coulter A 2000). The committee decided that the cost-effectiveness principle would be subordinate to the other two principles; thus, care would be provided for severe cases even though it may be more costly and provide less benefit (Ham & Robert 2003). Economic evaluation was to be limited to selecting between interventions for the same disease, not for choosing between treatments that address different disease conditions.
However, growing disillusionment within the Nordic countries with the principles-based approaches to priority-setting established the case for a focus on due process in the mid-1990s. This was because the implementation of the principles identified in these countries had proven inflexible (efficiency may be more important than equity in one context, but less important in another) and were based on a simplistic view of the health system (Holm 1998). The Danish report recommended an emphasis on due process instead of a rules-based approach, with the minimum requirements of transparency and accountability. A similar experience was noted in Norway, where the report by the priority-setting committee also encouraged a due process approach that emphasised transparency and accountability. The recommendation was a bottom-up approach in which different specialties would determine their own values for priority-setting, and would use them to set priorities in a manner akin to the consensus conferences in New Zealand.

5.2.2. Lessons Learnt From Priority-setting in Developed Countries

The experiences of these developed countries offer useful insights into priority-setting that might be relevant to explicit priority-setting in developing countries. These insights are outlined in the following sections.

*The Role of Technical Approaches to Priority-setting*

The experience in all the settings described above shows that explicit priority-setting cannot be conducted using technical approaches only. In Oregon where this was undertaken, there was marked resistance to the process and the results of the priority-setting process. Other settings shied away from using these approaches to inform priority-setting, initially preferring to set their priorities based on values obtained from the public within the context of a deliberative process. The result of these processes in New Zealand, the Netherlands and, later, Oregon were priority lists that were acceptable to the public and politicians. However, it is noteworthy that in New Zealand, the Netherlands and the Nordic countries, the role of technical approaches such as economic evaluation has not
been kept completely removed. Instead, these have been placed within a broader priority-setting process to which they contribute, albeit not as much as in the initial attempt in Oregon.

This concern at an empirical level is reminiscent of the remarks made by many in the literature, particularly by Sugden and Williams, who note that technical approaches—particularly economic evaluation—should be viewed as an aid in decision-making and not a substitute for judgement of the broader policy objectives of decision-makers.

*The Role of Economic Evaluation*

The empirical experience highlights the instances in which economic evaluation is likely to be useful in priority-setting. In Oregon, economic evaluation was used at the macro level to set priorities between broad categories of services. The failure of this approach at this level highlights difficulties in the application of economic evaluation for such a task (horizontal priority-setting). The amount of data about the costs and effectiveness required for all the possible interventions is huge. The data requirements for marginal analysis to capture the heterogeneity of individuals are massive and unlikely to be available.

In addition, the use of economic evaluation at this level assumes a level of commensurability of different outcomes of disparate programmes. The recognition of these difficulties led to other settings limiting the role of economic evaluation within priority-setting to similar diseases/risk factors and to the development of guidelines for a particular disease. This suggests that economic evaluation techniques, at least as they are currently applied, are more likely to be informative and accepted at lower levels of decision-making and within disease areas, rather than across disease areas or across the prevention spectrum.

An important issue is whether the limited role of economic evaluation in explicit priority-setting is due to conceptual flaws in the technique, as suggested by some, or whether the role has been limited by the manner in which it has been applied. As Eddy (1991, 1992)
argues, it is likely the latter, as was seen in Oregon, where the quality of the data used was questionable, the manner in which the preferences for the condition treatment pairs was elicited was wrong, and the quality cost analysis was poor.

More importantly in Eddy’s (and the current researcher’s) view, the technique was applied to address the decision-makers’ objectives, which were actually different from the answers that economic evaluation techniques provide. The decision-makers seemed to prefer prioritisation based on the severity of disease and the worst off, yet CEA (as applied in Oregon) maximises health gain irrespective of the starting point and who attains the benefit. Thus, it is essential that the decision-makers’ objectives are clearly understood prior to the priority-setting exercise so that the right technique is used. Otherwise, any rankings obtained will provide a counterintuitive ranking, as seen in Oregon.

The Role of Different Normative Values

Another important insight is the role of ethical principles in the priority-setting process, especially when determining broad priority categories and choosing whether to fund particular services. Most countries identified ‘efficiency’, ‘equity’ and ‘need’ (in the form of severity and effectiveness of the intervention) as important values. Others included ‘solidarity’, ‘human dignity’, ‘the value of the service to the individual’ and (in the Netherlands) ‘individual responsibility’. The tension between substantive principles discussed in Chapter 3 is evident in these settings, particularly in the Netherlands and Oregon, where the utilitarian and communitarian perspectives conflicted at times with individual perspectives. The requirement for flexibility at the clinical level in Oregon, the Netherlands and New Zealand serves as an attempt to reconcile the conflicting deontological and consequentialist paradigms at the clinical and macro levels of decision-making, respectively.

It is also important to note that in all jurisdictions, not all values had the same relative importance and the relevant values varied in each setting. In particular, the notion of
efficiency tended to play a subordinate role to ethical considerations such as need and human dignity. Thus, it is important to realise the relevant values for the decision context, and the relative importance of each. While efficiency was clearly an important value in Oregon, the negative reaction to the first list showed that other values, such as need, were more important than efficiency.

The Role of Judgement

The priority-setting experiences highlight the importance of judgement at all levels of priority-setting. At the macro level, this may be reflected in judgement regarding what method of priority-setting to use, what values to include and how to rank different interventions. At the clinical or micro level, the role of judgement was made evident in Oregon, New Zealand and the Netherlands by the flexibility afforded doctors to make judgement calls outside the guidelines, as determined by the case. This raises the obvious questions of whose judgement counts and what the basis of these judgements should be.

The Role of Public Consultation

In Oregon, New Zealand and the Netherlands, there was extensive public consultation. However, there were differences in the extent to which the public was consulted and the level that their input informed the process. New Zealand perhaps provides the best model of public engagement. From the beginning, the public was involved in establishing priorities and in ongoing discussions to determine broad services areas and to develop guidelines. In contrast, in Oregon and the Netherlands, public input into priority-setting came after the methodology for priority-setting had been determined. In Oregon, despite having obtained an indication of the public’s values, the commission ranked interventions based on efficiency. It was only after the negative reaction that the public’s values were incorporated in the ranking process for the second and third lists.

In addition, it is important to select the ‘community’ that will be consulted in the priority-setting process appropriately because this will affect the acceptability of the priority-
setting exercise and results. In the case of Oregon, the selection exercise discriminated against the people who were likely to be affected by the priority-setting exercise (women with children and the disabled), which led to resistance to the package.

Thus, the role of public engagement—at least in these developed countries—emerged as important, with particular consequences regarding how and to what extent the public should be engaged. These issues were discussed in Chapter 3.

The Need for a Champion

These experiences show that successful priority-setting requires a champion for the process to advance and be accepted. In Oregon, the leader of the state senate was a physician-turned-politician who realised that, in order to provide cover for everyone that was eligible, healthcare had to be rationed and, in order to do so, priority-setting had to be undertaken in an explicit manner.

The Difficulty of Excluding Services

The experiences above highlight that, at the macro level, it is very difficult to exclude services from the basic package provided to the public. In Oregon, this was met by stiff resistance that was matched only by the determination of the state senate to ration services. In the other countries, the rejection of the Oregon style has been viewed by many as a rejection of this approach. Instead, these countries elected to determine the circumstances in which services would be provided by using guidelines developed at lower levels of decision-making as a cost-containment tool. Thus, the guidelines provide a promising tool for achieving some of the objectives, such as efficiency, at the lower levels of decision-making.
The Context-specific Nature of Priority-setting

Last, these experiences highlight the highly context-specific nature of priority-setting. They also indicate that priority-setting is a dynamic process in which lessons are learnt from previous mistakes.

5.3. Priority-Setting For Health and HIV in Uganda

The most visible systematic and explicit priority-setting process in LICs has been the Global BOD study and the national BOD studies conducted in some countries in SSA, Asia and America. The BOD study undertaken in Uganda and its effects on priority-setting in Uganda are discussed here. In addition, the manner in which priority-setting for health and HIV/AIDS in Uganda and similar settings is conducted currently is described, together with lessons gleaned from this.

5.3.1. Priority-Setting for the Health Sector

5.3.1.1. Determination of Basic Health Services

Global Burden of Disease (BOD) and Uganda

The Global BOD was published in 1993, along with the World Development Report by the World Bank (Murray, Lopez & Jamison 1994; Murray & Lopez 1996; World Bank 1993). The aim of the priority-setting exercise was to promote those interventions that alleviated the greatest BOD and were cost-effective in LICs where resources for health were scarce. The endeavour was heavily criticised, as described in Chapter 3. However, despite this criticism, 64 LMICs established EHCPs based on this approach, where they have been used to guide resource allocation, improve equity, enhance accountability and control spending (Glassman & Chalkidou 2012).
Table 5.1: Low- and Middle-income Countries with EHCPs

<table>
<thead>
<tr>
<th>World Bank Developing Country Group</th>
<th>Countries</th>
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</table>
| Central and Eastern Europe          | Health insurance schemes: Azerbaijan, Bulgaria, Croatia, Estonia, Georgia, Hungary, Kyrgyz Republic, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation and Slovenia  
Tax-funded systems: Armenia, Kazakhstan, Slovak Republic and Tajikistan |
| Latin America and Caribbean         | Health insurance schemes: Argentina, Chile, Colombia, Dominican Republic, Nicaragua, Peru and Uruguay  
Tax-funded systems: Argentina, Bolivia, Brazil, Honduras, Mexico and Nicaragua |
| Asia                                | Health insurance schemes: Lao People’s Democratic Republic, the Philippines and Vietnam  
Tax-funded systems: Cambodia, China, India, Malaysia and Thailand |
| Middle East and North Africa        | Health insurance schemes: Egypt, Israel, Lebanon, Malta, Syria, Tunisia, United Arab Emirates, West Bank and Gaza and Yemen  
Tax-funded systems: Bahrain, Djibouti, Jordan, Morocco, Oman, Qatar and Saudi Arabia |
| SSA                                 | Health insurance schemes: Ghana, Kenya, Namibia, Nigeria, Senegal, South Africa, Tanzania and Uganda  
Tax-funded systems: Uganda and Zambia |

Source: (Glassman & Chalkidou 2012)

The only available source of the design of the BOD study in Uganda was Bobadilla and Cowley (1995d) These cost-effective interventions would be provided by countries in EHCPs that could be availed to all (Bobadilla et al. 1994). The packages were to determine what services would be funded in most cases by funds provided to governments through loans from the World Bank, as was the case in Uganda. The package was meant to consist of those services that were effective in reducing the BOD and were cost-effective and affordable. The benefit measure used in this study was the DALY.

In Uganda, the process for developing EHCP, or the MHCP as it came to be known, commenced in 1996 at the behest of the World Bank, and took almost a year to conduct, although other countries in the region took longer (Bobadilla & Cowley 1995c). The process was funded by the World Bank and initially was meant to involve eight districts in a pilot of the study; however, this was unfeasible and was abandoned. In the end, the process involved international consultants, a local team of researchers and technocrats at the MOH, as well as district leaders. According to Bobadilla et al., the methodology
involved the use of a simpler method than that used in middle-income countries and the global BOD study. This entailed the evaluation of 40 interventions because it was felt that including more would pose an unmanageable task. The contents of the package were determined based on the effect of BOD measured with regard to premature mortality only. There was no data on cost-effectiveness. The MHCP developed is shown in the table below.

<table>
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<tr>
<th>Table 5.2 Uganda Minimum Healthcare Package</th>
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<tr>
<td><strong>Cluster 1</strong></td>
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<tr>
<td>Health promotion and disease prevention</td>
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<tr>
<td>2. Environmental health</td>
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<tr>
<td>5. Epidemic and disaster Preparedness, prevention and control</td>
</tr>
<tr>
<td>6. Veterinary public health</td>
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<td>7. Prevention of non-communicable diseases</td>
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Source: Health Sector Strategic Plan (Ministry of Health 2005b)

The specific methodology for determining the package was rather opaque, as reports of the methods used identified ‘implicit criteria’ as a means of deciding the contents of the package. The lack of available data for the estimates required was acknowledged and it is likely that the estimates used in setting the priorities were of doubtful quality: ‘The results of these methods have been acceptable to the decision-makers involved in the country studies. The research community would probably find too speculative many of the estimates involved in these methods’ (Bobadilla & Cowley 1995d).

In addition to the data limitations acknowledged by the authors of this report, there was limited time available for the analysis. In countries such as Uganda, detailed analysis
could not be undertaken because of the time constraints imposed by the timeframe for the policy planning cycle. The authors also note that the process is resource intensive (human and financial) and would vary depending on the context.

An evaluation of the experience among health planners in Uganda found that with the national BOD study, the estimates have been useful in informing policy and advocating for more resources from the government (Kapiriri, Norheim & Heggenhougen 2003b). However, stakeholders reported that the techniques used were hard to understand (although this was more marked among those who did not participate in the process). It has also been shown that lack of data was a significant limitation on the study and the sustainability of these processes. In addition, the BOD process ignored values of importance to local stakeholders, such as equity and gender sensitivity. Last, the high cost of conducting the analysis has prohibited the use of the technique at this level for priority-setting across the entire health sector. Paradoxically, the same study found that health planners recommended five-yearly BOD studies to monitor trends in diseases and evaluate interventions.

Despite this, the BOD results continue to influence priority-setting for health in Uganda and other countries, such as Burkina Faso, Malawi, Senegal (Jenniskens et al. 2012b) and Tanzania (Dereck et al.). The influence in Uganda is discussed in the section below.

**Beyond BOD**

Since the Uganda BOD study in 1995, there has been no other attempt at systematic priority-setting for the health sector in Uganda. Instead, the priority-setting process is an incremental approach with a combination of a top-down and bottom-up consultative approach based primarily on the MHCP (Kapiriri 2012).

**Institutions and participants:** The process is overseen by the MOH. In particular, a national taskforce comprising the Director General of Health Services as the Chairperson, members of different departments in the MOH, and health development partners
spearhead the priority-setting process. The process is marked by wide stakeholder consultation, including health development partners, the private sector, district local governments, other relevant line ministries and civil society (Government of Uganda 2010). The basis of this consultative and participatory process is the SWAp.\textsuperscript{22} Despite the involvement of many different stakeholders, a study found that the donors had more say in the priority-setting process than the other stakeholders (Kapiriri, Arnesen & Norheim 2004).

The top-down aspect of priority-setting involves a stocktake of the entire health sector, the previous Health Sector Strategic Plan, information obtained from technical working groups (TWGs) and other key background documents at the macro level. For instance, 12 TWGs were formed for the last priority-setting round: Sector Budget Support, Hospital, Nutrition, Human Resources, Maternal and Child Health, Environmental Health, Health Promotion and Education, Public Private Partnerships in Health, Health Infrastructure Development and Management, Medicines and Supplies Management and Procurement, Communicable Diseases, Non-communicable Diseases and Supervision, Monitoring, and Evaluation and Research. With the guidance of consultants, the TWGs were tasked with developing the objectives, identifying the interventions and developing the strategies pertaining to their thematic areas (Government of Uganda 2010). Other consultations included: i) those completed with district local governments during the National Health Assembly and Joint Review Mission;\textsuperscript{23} ii) district planning workshops and iii) technical

\textsuperscript{22} This is an approach to international development that: brings together governments, donors and other stakeholders within any sector. It is characterized by a set of operating principles rather than a specific package of policies or activities. The approach involves movement over time under government leadership towards: broadening policy dialogue; developing a single sector policy (that addresses private and public sector issues) and a common realistic expenditure program; common monitoring arrangements; and more coordinated procedures for funding and procurement. (WHO World Health Report 2000)

According to Peters and Chao (1998), SWAp\textsuperscript{s} are meant to reinforce national leadership, foster transparent decision-making processes and build strong institutional capacity.

\textsuperscript{23} The Joint Review Missions are biannual meetings in which donors and development partners come together and discuss the progress in the health sector. Key areas are reviewed (October/November meeting) and undertakings agreed for the next six-month period (until the next Joint Review Mission). The March/April Joint Review Mission tends to be concerned with developing the sector priorities for the next fiscal year.
review meetings with health development partners, civil society and other ministries (Government of Uganda 2010).

Priorities are set based on the MHCP (Government of Uganda 2010; Kapiriri, Norheim & Heggenhougen 2003b; Ssengooba 2004). Apart from the cost-effectiveness values inherent in the minimum services package, other values that generally guide resource allocation include: i) considering health as a human right; ii) equity; iii) respect for diversity, professionalism, integrity and ethics; iv) participation and v) accountability (Kapiriri 2012). In addition to these values, it is important to note that key background documents describing the values or guiding principles for the priority-setting process highlight the need to align the selected priorities with global targets and goals, such as the Millennium Development Goals and the International Human Rights Charter (Government of Uganda 2000, 2010; Ministry of Health 2005a). A study conducted by researchers in Uganda found that among policymakers in Uganda, ‘severity of disease’ and ‘cost-effectiveness’ were important criteria in the priority-setting process (Kapiriri, Arnesen & Norheim 2004). However, stakeholders consistently rated ‘severity of disease’ as more important than ‘cost-effectiveness’.

It is notable that, despite the analysis done for the MHCP, the tendency has been to ‘ration within the minimum’ (Ssengooba 2004). This means that more often than not, the MHCP determined in the strategic plans tends to cost more (at $41 per capita) than the current level of expenditure per capita available ($12.5). Thus, there is a tendency to further set priorities within the MHCP by the MOH, albeit implicitly. Further, it has been argued that, despite the operational efficiency gains of using the MHCP to set priorities, the evidence at the national level—certainly for Uganda—has not been updated to reflect the changing epidemiological patterns. However, for this to occur would require a lot of resources because it is a very costly exercise (Kapiriri 2013; WHO 2008).

While the reality has been to ration within the minimum, the researcher does not consider this a weakness of the EHCP approach per se, but of the manner in which the EHCP was determined, especially with respect to the data used in costing the package. In addition,
the use of EHCPs in LICs has been found to provide necessary cost-effective interventions, and major improvements in service delivery (Bowie & Mwase 2011). However, in some settings, while it has been found to improve targeting of resources to high priority interventions, it has not been beneficial for the poor who are most in need of the services—although this might be due to wider systemic issues, rather than the contents of the package (Ensor et al. 2002). Countries such as Colombia have successfully used such packages to align public spending with priority populations and technologies (Giedion, Panopoulou & Gómez-Fraga 2009). In Chile, the adoption of a comprehensive benefits package led to an overall increase in access (measured in usage) of services, as well as decreased hospitalisation resulting from early diagnosis and treatment (Bitrán, Escobar & Gassibe 2010).

The bottom-up approach involves the development of work plans by district health committees and hospital planning committees that identify their priorities for the fiscal year (Kapiriri 2012). These are then submitted to the MOH and fed into the priority-setting process for the entire sector. They are compiled by the MOH and forwarded to the Cabinet for approval. In most cases, the recommendation is for a revision of the plans owing to a budget ceiling. It is at this point that another priority-setting process occurs, albeit implicitly, in which the priorities are revised by the Ministry before they are approved for funding by the Cabinet.

Priority-setting at lower levels (meso and micro) of decision-making usually follows a historical pattern (Kapiriri, Norheim & Martin 2007). Districts and healthcare facilities determine priorities based on the previous year’s funding, adjusted for population base and inflation. The formula used to determine the priorities is based largely on need and is defined by the BOD and size of the population. It has been reported that district priorities are usually constrained within the priorities that have been determined at the macro level and by donors, through the use of earmarked funds such as Primary Health Care Grants by the government and immunisation funds from GAVI. This leaves the district very little flexibility in priority-setting. The only leeway available is through locally mobilised funds, which are usually too little.
Even though structures such as health unit management committees and public health committees exist to include nominated members of the community in the priority-setting process for health facilities and districts, respectively, they are not routinely used (Kapiriri, Norheim & Heggenhougen 2003a). The factors that constrain the involvement of the public in priority-setting processes at this level include the low level of knowledge of the priority-setting process and lack of motivation (Kapiriri, Norheim & Heggenhougen 2003a). Thus, despite the fact that priority-setting at the lower levels of decision-making is supposed to be participatory, this hardly ever happens. Instead, priorities end up determined solely by district health committees, albeit within the constraints of broader national level priorities.

Thus, in general, despite the fact that technical approaches to priority-setting have been used in the past for priority-setting for health in Uganda, they have not been used to inform subsequent processes since then. This could be due to the challenges of data availability and the resource-intensive nature of these approaches. As Kapiriri reports, local health stakeholders felt that the methodology of the BOD study was difficult to understand. In addition, local values such as equity and gender sensitivity were not catered for in the process.

**Parallel priority-setting processes:** Despite the SWAp mechanism that has been used in this setting since the early 2000s, there are parallel priority-setting processes conducted by health development partners that result in priorities and resource allocations outside the MHCP. Often the rationale for these priorities is not made explicit (Kapiriri 2012).

### 5.3.1.2. Priority-setting for Medicines in Uganda

Apart from the basic package of services, another issue of importance is the determination of the essential medicines that should be availed to all Ugandans. The important concept of essential drug lists\(^{24}\) developed by the WHO has been of great importance in this regard,

\(^{24}\) Now called the "essential medicines list" (EML).
not only for Uganda, but for the majority of countries in SSA. The notion was one of the eight key issues to emerge from the Alma Ata Conference in 1975 (Laing et al. 2003; Mirza 2008). In developing and promoting these lists, the WHO sought to replicate the practice that had been used in countries such as Tanzania, Sri Lanka, Peru, Cuba, Egypt, Papua New Guinea, Mozambique, Canada and Australia (Mirza 2008).

The WHO states that, ‘Essential medicines are those which satisfy the needs of the majority of the population and should therefore always be available in adequate quantities and appropriate dose forms’ (Quick et al. 2002). The rationale behind these lists is that once they are adapted by the country to suit the local context, the drugs that ideally are efficacious, safe, cost-effective and address the greatest health needs in the community can be availed to the majority of the population (Mirza 2008).

The WHO develops a model list of essential drugs that is updated every two years through a systematic review process by the WHO Expert Committee on Selection of Medicines (Quick et al. 2002). As a consequence, many drugs have been removed and others added to the list. The list grew from 208 drugs in 1977 to 340 drugs in 2007. Initially, the development of the process consisted of the use of expert opinion (drawn from a panel of experts) on which drugs to include. This methodology was heavily criticised because the expert opinion was invariably based on experience, rather than evidence (Laing et al. 2003; Quick et al. 2002). However, in 2002, the WHO overhauled the process of priority-setting for essential medicines by developing the requirement for evidence on cost-effectiveness, safety, efficacy and quality. In addition, where affordability was previously a precondition for listing a medication as essential, it became a consequence of the listing. For instance, the listing of antiretroviral drugs as an essential medicine on the WHO model list led to international efforts to make the drugs affordable for the LICs. Other important changes include the development of a WHO model list for children and the linking of the model list to complementary activities, such as relevant WHO clinical guidelines, supporting evidence, model formulary text, price information, quality standards and nomenclature.
In Uganda, the first essential medicines list (EML) was developed in 1991, followed by a revision in 1995. The aim of these EMLs and the ones that have followed was to make accessible and affordable medicines available to the entire population of Uganda. It has been described as the basis ‘for procurement, prescribing and dispensing in the public health system and its use promoted in the private (profit and non-profit) sector’ (Ministry of Health 2007). The most recent EML in Uganda was published in 2007. It was developed with the 1999 WHO model list as a base, and was modified to suit the local context. The development process included technical officers from the MOH, pharmacists, clinicians from different specialties, the head of the National Medical Stores and a representative of the WHO.

The rationale for the revisions for the EML is to reflect the current state of therapeutics. At the time the most recent EML was developed, there was a need to incorporate new antimalarial drugs (artemisinin combination therapy) and antiretroviral drugs in order to ensure their availability and access to all who needed them. The criteria used to determine whether medicines should be included on the list have been made explicit and include:

- **efficacy**: the capacity/ability of the medicine to effectively treat the diagnosed condition
- **safety**: the therapeutic index of the medicine (ratio of treatment dose to toxic dose) and the nature, frequency and severity of expected side effects
- **quality**: compliance of the medicine presentation with internationally accepted standards of purity, composition and consistency
- **cost-effectiveness**: considered in terms of available and effective alternative medicines or dose forms
- **appropriateness**: the overall suitability of the medicine within the local context, taking account of various factors, including:
  - changing morbidity patterns
  - stability in storage
  - likely compliance with dose regime
  - development of resistance
  - type of dose form/method of administration
Socioeconomic factors.
It is unclear from the available literature what the evidence base was or which factors were most important in determining the worth of the drugs.

A review of the potential influence of the EMLs on rational drug use highlights the paucity of evidence based on comparative studies in this regard. However, the available evidence suggests an association between increases in the supply of essential drugs (combined with training) and more appropriate use of medications in primary care settings (Ratanawijitrasin, Soumerai & Weerasuriya 2001). Other sub-national studies show increases in drug availability in Yemen (Hogerzeil et al. 1989) and Lagos (Mabadeje, Akintonwa & Ashorobi 1991).

A recent survey conducted in 45 countries (Uganda inclusive) shows low availability of drugs. In the African countries where the survey was conducted, the survey found that, within the public sector, the availability of tracer drugs was at 29.4%, while in the private sector, it was at 54.6%. In addition, the survey showed that the prices in the public sector were 30 to 66% and in the private sector were 100 to 358% higher than on the international market (Cameron et al. 2009). However, it is unclear what the availability of the drugs was prior to the introduction of the EMLs. It has been argued that the disconnect between the availability of the drugs and the lists is related to the absence of attention to affordability by a country, as well as limited connection to the overall budgetary process (Glassman & Chalkidou 2012).

Appropriate Use of Medicines
Uganda has used the notion of clinical guidelines to guide prescribing patterns and ensure the cost-effective use of drugs to avoid waste and inefficiency. They have been two revisions of the 1993 National Standard Treatment Guidelines in order to reflect changes in therapeutics and clinical practice. The first was in 2003 and the most recent was in 2009 (Ministry of Health 2010).
Unlike the countries discussed above, these guidelines are developed in a top-down manner at the central level. The process of formulating these guidelines is participatory, involving clinicians from different specialties (such as psychiatry, surgical specialties, paediatrics, obstetrics and gynaecology, and adult medicine), quality assurance managers and representatives from the WHO. It is unclear what evidence and level of evidence informs the development of these guidelines.

5.3.2. Priority-Setting in Other LICs in SSA

The reality of the priority-setting described above is not unique to the Ugandan context. A recent study reviewed priority-setting processes in five SSA countries: Burkina Faso, the Democratic Republic of Congo, Ghana, Madagascar and Malawi (Jenniskens et al. 2012a). Similar to the Ugandan experience, the priority-setting process consists of consultation among a wide number of stakeholders in meetings where they each express their views. In addition, the process is a combination of a top-down and bottom-up approach, similar to the one in Uganda. The bottom-up approach involves the community and district needs, as articulated by them. These priorities are then aggregated at the national level during the process of formulating the National Strategic Plans and policies.

All these countries develop EHCPs based on local epidemiological data. While it is unclear what the role of the BOD study has on the formulation of these packages, local epidemiological data—such as statistics from Health Management Information Systems—drive the development of the package. Apart from the evidence on the local BOD, other key influences in the priority-setting process include international agreements and goals with which the strategic plans must align. In a manner akin to the one in Uganda, the donors influence priority-setting decisions in these countries. The study found that their influence tends to distort healthcare priorities, as the funds are usually earmarked to particular priorities. However, the advantage of including donors in the priority-setting process is that they develop evidence on best practice and tend to highlight important issues that might otherwise be missed, such as those related to human rights and the situations of marginalised groups.
Like Uganda, Tanzania is an LIC in East Africa that has decentralised healthcare delivery with devolution of the planning process to the lower levels of decision-making. Chitama et al. (2011) describe the nature of the priority-setting process for family planning and maternal, neonatal and child health (MNCH) services at the district level in Tanzania. This process provides useful insights into the nature of priority-setting exercises at the district level for similar countries in SSA. Despite a provision for the involvement of reproductive and child health services (RCHS) coordinators in the priority-setting process, the study found that, more often than not, the Council Health Planning Team (CHPT) did not include the RCHS coordinators. Instead, the chosen form of engagement of the RCHS coordinators was through the submission of proposals for family planning and MNCH services to the CHPT, who then decided whether to include them. In some cases, the priorities suggested were included in the Council Health Plans, and sometimes they were not. This means that some necessary interventions are never funded.

The lack of knowledge and skills in priority-setting at the district level is a challenge that was noted in this setting. Similar to the situation in Uganda, it was found that resource allocation skills are very low at all levels, starting with the district RCHS and district health system levels. In most cases, the district RCHS and CHPTs rely on intuitive experiences in prioritising interventions. The priority-setting approach in this setting has been described as top-down and incremental in nature, with very little contribution from the community. Like their Ugandan counterparts, the CHPT use the previous year’s plan as a base for the next year’s projections.

With regard to the criteria and values that guide priority-setting at this level, the CCHP guideline requires that the essential health package, BOD profile, council performance indicators and MDGs should provide guidance in determining the priorities. However, the study found that the CHPT team rarely considers these. In addition, no criteria are explicitly used and the selection of interventions is usually undertaken in arbitrary manner. The role that evidence plays in decision-making is limited. This arises because the family planning and MNCH information used in priority-setting is usually either incomplete or
inaccurate. Last, the study showed that, like Uganda, the priorities of donors and national level priorities constrain the priority-setting process because local priorities often have to be aligned to the donor and central government’s priorities. In the end, the priorities funded do not reflect the local epidemiological context.

5.3.3. Empirical Enquiry on Priority-Setting for LICs

There has been a marked increase in the level of empirical enquiry into priority-setting for health in LICs. This enquiry has been with regard to the development of suitable comprehensive priority-setting approaches for this context, the development of values that do and should guide priority-setting, and the involvement of different stakeholders.

With regard to suitable approaches for priority-setting in this context, a number of approaches have been used to set priorities in LICs for the entire health sector, while others have been limited to particular conditions or health services. For instance, the MCDA has been in Nepal to determine whether a Practice Approach for Lung Health should be funded (Baltussen et al. 2006b). The approach used a set of criteria with varying levels of importance to rank a set of 34 interventions (including the Practice Approach for Lung Health). In the end, the lung health programme ranked thirteenth out of the 34 programmes.

In an exploratory study, the investigators used the MCDA approach to determine the relative importance of criteria for priority-setting in Ghana (Baltussen et al. 2006a). Subsequently, the criteria were used to rank a set of illustrative interventions in a composite league table. The high priority interventions in Ghana were prevention of mother to child transmission in HIV/AIDS control, and treatment of pneumonia and diarrhoea in childhood. The low priority interventions were to control blood pressure, tobacco abuse and alcohol abuse. The use of MCDA in priority-setting has also been explored for HIV/AIDS in Thailand (Youngkong et al. 2012).
The main findings in these countries were that it was helpful in clarifying which criteria are used in priority-setting and their relative importance. It was also useful in engaging policymakers in the priority-setting process and fostering transparency. However, the use of DCE to elicit and rank the criteria was associated with high cognitive burden—this might limit its usefulness for decision-makers. It is important to note that the cognitive burden related to methods for eliciting the relative importance of these criteria is not limited to LICs, but to decision-makers in developed countries. For instance, Carter et al. report a similar challenge among decision-makers in Australia. It is unclear what effect these illustrative studies have had on priority-setting in the countries where they were conducted. However, they have contributed to the discourse regarding priority-setting in LICs (Glassman & Chalkidou 2012; Glassman et al. 2012).

Lasry et al. (2008) developed a System for HIV/AIDS Resource Allocation to establish priorities for HIV/AIDS in a clinic in KwaDukuza, South Africa. This decision support system (further discussed in Chapter ) is a user-friendly, Microsoft Excel–based tool that enables the decision-maker to consider programme factors that constrain and facilitate the priority-setting and implementation process, with the aim of addressing these and assembling evidence on cost-effectiveness, BOD and equity considerations. Based on this evidence, the decision-maker is able to make decisions. Besides its use in this setting, there is no evidence that it has been used elsewhere to aid priority-setting.

Other comprehensive priority-setting approaches that have been developed have been used to establish priorities for health research in LICs. These comprehensive approaches include the Child Health and Nutrition Research Initiative and the Combined Approach Matrix (Rudan et al. 2010). These have been used to set priorities for child health research and mental health, respectively. While these approaches are discussed in detail in Chapter 9, it is important to note here that they combine both deliberative processes with a high regard for evidence-based decision-making.

A number of priority-setting tools have also been developed and used to establish priorities for health in the context of LIC. These tools include Spectrum and the inbuilt
modules, the Lives Saved Tool (LiST), GOALS module, Resource Needs Module and the AIDS Impact Module. Spectrum is a well-established software that has been used in many LICs to project national and sub-national demographic change. The LiST software is used to project changes in child survival in accordance with changes in coverage of different child health interventions. LiST contains pre-loaded data on national level health status, mortality and coverage for health interventions. Therefore, an analysis for any country can be completed to determine the effect of child health interventions in that country. It has successfully been used to inform priority-setting processes in Burkina Faso, Ghana and Malawi (Bryce et al. 2010) and to determine the effect of child health programmes in 42 countries in SSA, including Uganda (Friberg et al. 2010).

Another module within the spectrum model is GOALS, which has been used to inform priority-setting processes in six countries in SSA (Forsythe, Stover & Bollinger 2009). This model is discussed further in Chapter 9 of this thesis because it forms part of the technical analysis in this thesis.

The empirical experience shows the growing realisation of the need for explicit criteria in priority-setting in this context. The elucidation of criteria and values that should guide priority-setting is another important area of empirical enquiry. Kapiriri and Norheim (2004) explored the acceptability of some criteria among policymakers, health workers and the public in Uganda. In Argentina, the most important criteria for determining priorities were evidence of effectiveness, social/stakeholder demand and resource availability (Rubinstein, Belizán & Discacciati 2007).

A study was conducted to rank different criteria for priority-setting among policymakers in Uganda. The most highly ranked criteria were severity of disease, benefit of intervention, cost of intervention, cost-effectiveness of intervention, quality of data on effectiveness, patients’ age, patients’ place of residence, patients’ lifestyle, importance of providing equity of access to healthcare, and community views. The least ranked criteria were the patients’ religion, and power and influence (Kapiriri & Norheim 2004). In another study, the relative importance of cost-effectiveness and severity of disease were
elicited using hypothetical interventions. The selection of interventions implied a higher preference for severity of disease among local policymakers. In contrast, donors ranked cost-effectiveness higher than severity of disease (Kapiriri, Arnesen & Norheim 2004). Other studies have been conducted to rank criteria for priority-setting in Ghana, Thailand and Nepal, which would be used to rank healthcare interventions (Baltussen et al. 2006a; Baltussen et al. 2006b; Youngkong et al. 2010).

The techniques that have been used to elicit and rank priority-setting criteria in this context have been varied. They include the use of quantitative approaches such as DCE to elicit and rank the priority-setting criteria in order of preference (Baltussen et al. 2006a; Baltussen et al. 2006b; Youngkong et al. 2010). They also include qualitative approaches such as semi-structured interviews, group discussions and key informant interviews (Kapiriri & Norheim 2004). As aforementioned, experience with the quantitative approaches has indicated that they impose cognitive burden on participants.

Thus, in general, empirical enquiry into priority-setting shows that there is growing interest in explicit and systematic priority-setting in LICs. In addition, it illustrates the interest in comprehensive approaches to priority-setting that not only advance evidence-based priority-setting, but also include deliberative processes that are fair and transparent. Last, the development of priority-setting tools in this context shows the growing recognition of technical analyses within the priority-setting process.

5.3.4. Lessons from Priority-Setting in LICs

The empirical experience in LICs highlights a number of issues that are important to note. The first issue is that technical approaches to priority-setting for the entire health sector in LICs, though few, have provided useful information that has been used to inform priority-setting in these countries, to align public expenditure and to improve coverage of cost-effective services. However, it also highlights the difficulty in institutionalising these processes. This is related to the high costs of conducting the technical analyses, the data
requirements and the lack of capacity. Thus, the issue of data tractability and affordability and operational efficiency of the priority-setting process is key.

The role of donors is a second important issue to note. The conceptual framework for this study highlights the importance of building strong priority-setting institutions. The mechanisms for engaging donors in the priority-setting process are in place. It is important that the ideal approach to priority-setting capitalise on these mechanisms (SWAPs) in order to address the distorting effects of parallel processes of priority-setting. Once again, the decision-maker approach to priority-setting and economic evaluation offers unique opportunities in which the diverse needs of different decision-makers can be addressed.

Third, there is growing recognition that priority-setting is value laden, and that these values and the importance placed on them are context specific. Thus, in order to improve the legitimacy of the priority-setting process, it is important to be explicit about the values that underlie priority-setting decisions and the role each plays. The ideal priority-setting approach should thus provide a mechanism for eliciting the values of importance to decision-makers in that context so that the basis on which decisions are made is explicit.

Fourth, the failure of EMLs to markedly improve the availability of drugs, as well as the necessity to ration within the minimum, have been attributed to planning that is divorced from the budget process and that does not consider account affordability. The tendency to develop strategic plans as a wish list and use them as a ‘resource mobilisation tool’ necessitates the need to ration implicitly within the minimum, and a consequent failure to achieve targets. Thus, it would seem that an explicit recognition of budget constraints is important at the beginning of the priority-setting process. It is at this point that tools such as economic evaluation provide useful input for resource allocation.

Fifth, the need for fair and transparent deliberative processes in these settings is an important issue that emerges from the empirical experience and enquiry in priority-setting. However, challenges exist particularly in engaging the public and other relevant stakeholders in priority-setting. The ideal approach to priority-setting should address these
challenges that, for the greater part, include low level of knowledge and motivation on the part of non-technical stakeholders and the power relations that exist at the district level and among donors at the national level.

Last, the empirical experience in LICs demonstrates the growing recognition of the need for explicit priority-setting among academics and policymakers at all decision-making levels.

5.4. Conclusion

This chapter has discussed the empirical experience of priority-setting in LICs and, to a lesser extent, in developed countries. Chief among the emerging issues of importance is that explicit approaches to priority-setting should not be limited to technical approaches, but should incorporate fair and transparent deliberative processes. It has also shown that priority-setting is messy, dynamic and controversial. With specific reference to LICs, this chapter has highlighted the need for operational efficiency and data tractability within the priority-setting process.
PART C: METHODOLOGY AND RESULTS
Chapter 6: The Study Methods

6.1. Introduction

Chapter 1 established the need for explicit priority-setting and the background and rationale for this study. It has been established that not much is known about the priority-setting process for HIV/AIDS in Uganda, and that, at best, the process is *ad hoc* and has resulted in a sub-optimal response that is not aligned to the epidemic. In addition, in some cases, the response is not based on the best available evidence.

In light of this, this thesis sought to develop and trial the ‘ideal’ approach to priority-setting for HIV prevention among adults in Uganda. The focus was on HIV prevention as an illustrative area because of the effect that HIV/AIDS has on the country, as shown in Chapter 1. It should be noted that the Government of Uganda and the global health arena recognises the effect that HIV/AIDS has on the development of the country. HIV prevention has consequently been made a priority in the National Development Plan 2010 to 2015, and the commitment to halting and reversing the HIV/AIDS epidemic is half enshrined in the Millennium Development Goals. Thus, the question answered in this thesis was:

**What constitutes an ideal approach to priority-setting for HIV prevention for adults in Uganda?**

Thus the objectives were:

5) to describe the priority-setting context, processes and evolution with respect to HIV prevention in Uganda

6) To determine the theoretical and stakeholders’ most critical criteria required by a strong priority-setting process for HIV/AIDS.

7) to evaluate the performance of existing priority-setting approaches based on the critical criteria identified
8) To propose and evaluate an approach for priority-setting for HIV prevention in Uganda.

6.2. Methodological Approach

The study outputs included:

- a description of the evolution and context of the current priority-setting process for HIV/AIDS in Uganda
- a checklist consisting of weighted criteria to assess the selected approaches for suitability, as well as priority-setting approach
- a priority-setting approach developed for guiding resource allocation in Uganda
- The results of a pilot study that used the approach to determine priorities for HIV prevention.

6.2.1. Objective 1: To Describe the Priority-Setting Contexts, Processes and Evolution with Respect to HIV Prevention in Uganda

The study was conducted primarily in Kampala, Uganda, where many stakeholders in priority-setting for HIV/AIDS are based. This is the capital city of Uganda and is home to the MOH and UAC, who spearhead the decision-making process for HIV/AIDS in Uganda. It is also the base of many civil society organisations, ADPs and other stakeholders of priority-setting for HIV prevention. Government documents were reviewed with the aim of understanding past and current priority-setting processes in Uganda. The documents reviewed included the strategic plans for HIV/AIDS 2000/2002 to 2005/2006, 2007/2008 to 2011/2012 and 2012/2013 to 2014/2015, as well as guidance papers on costs and the situation analysis of the HIV/AIDS response in Uganda.

Key informant interviews were conducted with stakeholders involved or engaged in the priority-setting process for HIV/AIDS in Uganda. In order to identify the most appropriate stakeholders, a stakeholder analysis was undertaken based on the information derived from the document analysis, as well as prior professional networks. The analysis identified
10 groups of stakeholders: planners at UAC; the MOH; ADPs (bilateral and multilateral); the Ministry of Finance, Planning and Economic Development (MOFPED); and the Ministry of Gender, Labour and Social Development (MOGLSD). Other stakeholders included the MARPs, PLWHAs, media, academia, district planners, religious leaders, civil society and youth.²⁵

A semi-structured interview schedule was used to interview the key informants. The schedule was developed basing on the study investigator basing primarily on the literature review of the contextual issues pertinent to priority-setting generally. It was pilot tested among participants in the HIV/AIDS priority-setting process to ensure reliability and validity and to ensure it did not impose undue cognitive burden on the respondents.

The interviews were conducted face-to-face or, when this was not possible, via telephone. Telephone interviews were conducted with 10 participants. For all interviews, a digital recorder was used to record the interviews. Handwritten notes were taken for all interviews and compared with the digital records. In line with a grounded theory approach (Strauss & Corbin 1990), data collection was conducted in tandem with data analysis to allow the emerging information to guide the subsequent interviews.

The audio data were transcribed (by GK), with care taken to ensure fidelity to the recorded data by reviewing every transcript. Typed interview transcripts were imported into NVivo 10. Principles drawn from Strauss and Corbin’s (1990) grounded theory approach were used to guide the analysis of the data. Specifically, keywords, phrases and sentences from the transcripts were used to code the data—that is, to create descriptive and analytical categories. Initially, the entire text was analysed to identify key themes, then the text was micro-analysed, sentence by sentence, to identify emerging concepts and ideas. In order to ensure the validity of the data analysis, another investigator in the study (HM) conducted independent analysis of the data.

²⁵ The United Nations defines youth as people aged between 15 and 24 years.
The paper records—such as informed consent forms—were locked in a secured file cabinet in the researcher’s office space. All electronic data were stored on a computer with restricted access—access was limited to the study investigators only. Paper records were transferred from Uganda to Australia in a well-secured bag. The findings of this sub-study are detailed in Chapter 7 of the thesis.

6.2.2. Objective 2: To Determine the Theoretical and Local Stakeholders’ Most Critical Criteria Required by a Good Priority-Setting Process for HIV/AIDS

The goal of this objective was to determine how to judge what an ideal priority-setting approach is for HIV/AIDS in Uganda. In order to do this, the recommendations by Gold et al. (1996) for judging the ideal approach to economic evaluation were used as a framework to guide thought on the ideal approach to priority-setting for HIV/AIDS in Uganda. The framework includes four rationales that were judged to be particularly pertinent to priority-setting:

- **The theoretical rationale (T):** This addresses the contribution of economics theory to priority-setting. The rationale includes economic concepts and frameworks that provide normative guidance for evaluating healthcare programmes.

- **The ethics rationale (E):** This refers to the contribution of the discipline of ethics, and particularly bioethics, to priority-setting. Ethics provide moral guidance on what is wrong, what is right and what is fair. The notion of fairness is particularly relevant to resource allocation.

- **The pragmatic rationale (P):** This rationale refers to the contribution of the empirical experience of priority-setting to the ideal approach to priority-setting.

- **The user’s perspective (U):** This rationale refers to the contribution of the decision-makers’ needs for priority-setting.

This framework represents a scientific and logical approach to determining the features of the ideal priority-setting approach. It was used to create a checklist for priority-setting that
guided the development of a priority-setting framework that has successfully informed resource allocation (Carter 2001). This study is the only instance in which a scientific approach to developing such a framework has been used. Given the above framework, the following methods were used to determine what was ideal.

*Literature Review*

This has already been presented in the Section B. The purpose of this review was to determine from the literature the features of an ideal priority-setting approach for HIV/AIDS in the context of Uganda. In particular, the literature review was undertaken to determine the theoretical, ethical and pragmatic rationales. To this end, a review of the following literature was conducted:

- The broader priority-setting literature and literature on priority-setting in LICs and for HIV/AIDS. It was essential to review the literature about the issues that have emerged as important in the theory of priority-setting generally and in LICs in particular, so that the ideal framework could address these. A systematic review of the literature was undertaken through methodical searches of electronic databases: Medline, Scopus, Google Scholar and Embase. Particular attention was paid to the literature on priority-setting for LICs because this was of much greater relevance to the study context. The review of theory on priority-setting is detailed in Chapter 3.

- Literature on the contribution of economic and ethics theory to priority-setting. A number of theoretical disciplines provide useful guidance to priority-setting for health, including epidemiology, behavioural sciences, philosophy, clinical science and more. However, this review focused mainly on the contribution of economics and ethics to priority-setting because these two theories provide unique contributions to resource allocation for HIV/AIDS. A focused review of the economics literature was conducted with particular attention on its applicability to LICs. Thus, only theoretical notions, such as welfarism, that are pertinent to economic evaluation are discussed in depth in this thesis. Other possible branches of economics, such as game theory and public finance, are not discussed. With
regard to economic evaluation, emerging paradigms of less relevance to HIV/AIDS, such as a capabilities approach, are overviewed for the sake of completeness, but are not assessed in any detail. The focus is very much on priority-setting for HIV prevention in Uganda. The findings of this review are presented in Chapters 4 of the thesis.

- The literature describing the empirical experience of priority-setting in health systems in different countries, in both developed countries and LICs settings. This was to determine the criteria within the pragmatic rationale that the ideal approach should fulfil. This is discussed in Chapter 5 of the thesis.

The key informant interviews conducted with stakeholders (described above) were undertaken to determine the criteria that these stakeholders felt were important for priority-setting for HIV/AIDS in Uganda. Once the criteria were determined by the stakeholders, these criteria were weighted to determine their relative importance.

*Online Survey to Elicit Weights and Thresholds for the Checklist*

Following the definition of the criteria by the scoping study and the key informant interviews, stakeholders participated in a survey in order to determine the relative importance of the criteria and thresholds. The concept of thresholds was important for preventing the adoption of an approach that fails dramatically against the criteria that stakeholders deemed most important. The stakeholders involved in this exercise were people knowledgeable of technical public health terms and were assembled together in a stakeholder consultation workshop.

For the purpose of the study, the first step was to elicit the relative weights of the criteria. To achieve this, the participants were given a list of criteria that they were asked to rank in descending order, with one representing the most important criterion and 10 representing the least important. If all were ranked equally the same, the average rank would be 5.5. The main assumption here was that the criteria were mutually independent.
Therefore, any increase from this value towards the theoretical maximum of 10 indicated decreasing importance, and vice versa.

In order to obtain the weight of each criterion, the expected average weight was divided by the rank of the criterion, which would range from a maximum of 5.5 to a minimum of 0.55. The second step was to determine the thresholds of the scores that each approach should have attained for each criterion. A visual analogue scale was used to determine this. On a scale of zero to 10, the participants were asked to select a value that they thought should be the score below which an approach would be considered as having not met the criterion.

Chapter 8 of this thesis describes the checklist in detail by summarising the components determined in Chapters 3 to 5.

6.2.3. Objective 3: To Evaluate the Performance of Existing Priority-Setting Approaches based on the Critical Criteria Identified

This sub-study was crucial for assessing and scoring the pre-existing approaches using the checklist discussed above. The process and results of this are provided in Chapter 10 of the thesis. In order to achieve this objective, the weighted summation model was used. The weighted summation model is a linear additive model that can be used to address problems that involve a finite and discrete set of policy alternatives that have to be evaluated in terms of a number of decision criteria. It is a special form of multi-attribute value theory and can also be called a ‘linear additive model’. It is only applicable when all data are expressed in the same units.

In general, suppose that a given problem is defined on $m$ alternatives and $n$ decision criteria. Further, assume that all the criteria are benefit criteria—that is, the higher the values are, the better it is. Next, suppose that $w_j$ denotes the relative weight of importance of the criterion $C_j$ and $a_{ij}$ is the performance value of alternative $A_i$ when it is evaluated in
terms of criterion $C_j$. Then, the total (that is, when all the criteria are considered simultaneously) importance of alternative $A_i$, denoted as $A_i^{\text{WSM-score}}$, is defined as follows:

$$A_i^{\text{WSM-score}} = \sum_{j=1}^{n} w_j a_{ij}, \text{ for } i = 1, 2, 3, \ldots, m.$$  

For the maximisation case, the best alternative is the one that yields the maximum total performance value. Thus, in this study, eligible frameworks were scored using the priority-setting criteria that were in the checklist. The highest score that a framework could attain on a criterion was 10 and the lowest score a framework could attain was one. The aggregate score obtained for a framework for each criterion was divided by the total number of participants to determine the average score on each criterion. Thus, the aggregate score of the frameworks was determined as a summation of the average scores on each criterion using the weighted summation model above.

The concept of thresholds was used to augment judgement on performance in the sense that high-performing frameworks that scored poorly on the criteria that were judged as the most important were subsequently ranked lower. Thus, if a framework scored highly on all the criteria that the participants judged as most important (weights above the expected average), it would be considered for adoption for this setting. In the absence of this, frameworks were adapted if the frameworks scored highly on 50% of the most important criteria. Adaptation involved designing the framework to incorporate methods that addressed the criteria in which the frameworks performed poorly. This was informed by theory, empirical priority-setting experience in the literature in contextually relevant settings, and guidance from expert opinion. In the event that none of the frameworks met the criteria, a new framework would be developed.
6.2.4. Objective 4: To Propose and Evaluate an Approach for Priority-setting

Pilot Study

The approach developed above was assessed for effectiveness in a pilot study that examined how to allocate resources for HIV/AIDS in Uganda. The methodology and results for this pilot study are provided in Chapter 10 of this thesis.
Chapter 7: Priority-Setting for HIV/AIDS in Uganda: 
Evolution and Way Forward

7.1. Introduction
This chapter provides the results of a qualitative study that was conducted in Kampala, Uganda among stakeholders in the HIV/AIDS priority-setting process. The rationale and the methodology of this study are set in Chapter 6, section 6.2.1. The main objectives addressed by this qualitative study were:

- To describe the priority-setting contexts, processes and evolution with respect to HIV prevention in Uganda.
- To determine the theoretical and stakeholders’ most critical criteria required by a strong priority-setting process for HIV/AIDS.

7.2. Results/ Findings

7.2.1. History and Evolution of Priority-Setting Processes for HIV/AIDS in Uganda

We found that the process of priority-setting is under the governance of the UAC. The UAC has held this role since its establishment in legal statute in 1992 by the office of the President. According to documents reviewed, the priority-setting process for HIV/AIDS is iterative in five-yearly cycles and builds on feedback from previous processes and local epidemiological dynamics; and necessary shifts in global policy, such as the scale-up of antiretroviral therapy. For instance, the documents demonstrate that there have been five priority-setting processes for HIV/AIDS since 1986. Following the establishment of UAC, (Government of Uganda 1992) the Multi-sectoral Approach (MACA) was developed along with the National Operational Plan for AIDS (NOPA) to guide implementation of the MACA (UAC 1993). The MACA was based on wide stakeholder consultation and guided the HIV/AIDS response until 2000. Following this, the National Strategic
Framework of 1998-2002 (NSF) was developed to guide the response over that period. However, the documents record that a new priority-setting process, and subsequently a new framework, had to be conducted mid-way through the implementation of the NSF (Government of Uganda 2000) due to evidence of gaps the framework arising during implementation. Secondly, there was a need to align the framework with the overarching national policy for development and health that was implemented in 2000-2005. Thus, this iterative process resulted in the development of the National Strategic Framework of 2000/01-2005/06 (UAC 2000). This framework was subsequently reviewed mid-term and revised in 2003/04 to reflect global and subsequently local changes due to the availability of antiretroviral therapy for the treatment of HIV/AIDS.

Following this 2003/04 revision, the next strategic framework was the 2007/08-2011/12 framework (UAC 2007). This framework has been recently reviewed and refined to form the 2012/13-2014/15 framework. The 201213-2014/5 framework reflects increases in HIV/AIDS incidence and prevalence and calls for an increased focus on prevention (UAC 2011b). In particular, the need to incorporate new approaches to HIV/AIDS programming proposed by the Joint United Nations program on HIV/AIDS (UNAIDS), was also a key driver in the revision of the framework.

The necessity of the iterative process was highlighted by some respondents in the interviews, for instance a representative of one of the ADPs remarked:

_I was involved in the formulation of National Strategic Framework 2000/01-2005/06 and National Strategic Plan 2007/08-20011/12. The NSF was broad and not targeted. Anyone could see themselves into it. We missed how we were going to bring everything together, how we were going to synergize. We didn’t have proper baselines or targets for what we were trying to achieve. We only had a goal. When it came to the Mid-Term Review it was so hard. How were going to evaluate when we didn’t have proper baselines? We did the sero survey somewhere in between the framework. So we didn’t have baseline information to work with. So then we said, “We need to have a plan”. A plan is where we are working together within clear parameters, we indicate clear roles and responsibilities, you know who to hold accountable for a particular delivery, we have clear targets, and it is costed. The other was not costed. (ADP 1)_
7.2.2. Current priority-setting Process

Conduct of the priority-setting Process:

Based on the category and thematic analysis of the interviews, it was revealed that there are three parallel priority-setting processes that occur at the national level. These include, what in this study will be referred to as the mainstream priority-setting process overseen by the Uganda AIDS Commission; the process overseen by the Country Coordinating Mechanism (CCM) of the Global Fund to Fight AIDS TB and Malaria (GFATM), as well as the priority-setting that takes place within the AIDS Development Partners. These are shown in the figure below.

The CCM is a multisectoral body comprised of members of the government (UAC, MOH, MOFPED, and MOGLSD), ADPs, Academia, MARPs and CSO representative. This multi-stakeholder and participatory body is charged with setting priorities and developing proposals for funding from GFATM for HIV/AIDS, TB and Malaria for Uganda. At every funding cycle, the CCM draws its priorities from issues raised by the technical agents of different sectors and other stakeholders like CSOs, MARPS and representatives for People Living with HIV/AIDS.

Funds from GFATM is managed by two principal recipients who sign for the money and oversee its disbursement, specifically, the Ministry of Health on behalf of the Government of Uganda and The AIDS Support Organization (TASO) on behalf of the Civil Society. The Ministry of Health disburses the money to district local governments and facilities while TASO disburses money to the Civil Society Organizations.

Another priority-setting process occurring parallel to the mainstream priority-setting process is that conducted by ADPs who determine priorities based on two factors: the priorities identified in the mainstream priority-setting process and those that are central to their own organizational core agenda for instance:

The other bit that I saw was donors give an indication (of what their priorities are). At this level, it is more complex. As UNDP, if you drag me into orphan support I will not get in. How far does
that align with the core areas of interest to UNDP...? How far do they align with my priorities? (ADP2)

The influence of parallel priority-setting processes is not limited to the national level but extends to the district level as one-district respondent explained:

Lastly, most of the donors who provide most of the funds come with their own priorities. (District Planner)

Thus there are other parallel priority-setting processes going on and the extent to which they are aligned to the priorities stipulated in NSP is affected by core objectives of these entities.

The mainstream priority-setting process, overseen by UAC, begins when a bid is sent out for expressions of interest in guiding the priority-setting process. The successful consultant is given the Terms of Reference that have been developed by the UAC, which include the development and management of Technical Working Groups (TWG), conducting widespread stakeholder consultations and drafting the strategic plan or framework.

Each TWG is responsible for a thematic area that the NSP will address such as the ‘prevention, care & treatment’ and ‘social support’ thematic groups for the NSP 2007/08-2011/12. The TWGs are charged to collate, interpret and synthesise the evidence pertinent to their thematic area, and lastly, offer recommendations. Following this a final process of approval by the parliament and cabinet is required in order to legitimize the priorities that are selected in the priority-setting plan.
Figure 7.1: Priority-setting processes for HIV/AIDS in Uganda

CCM-led priority-setting

Global Fund Country Coordinating Mechanism (Ministry of Health, CSOs representatives, MARPs, UAC)

District Health Officers and CSOs

Community Health Centers

Donor-agenda driven priority

ADPS: Multilaterals and Bilaterals

International NGOs, National Level NGOs, District NGOs

Community Based Organizations

Mainstream Priority-setting

District health planners, CSOs, FBOs,

HISD officers, Community leaders, Local Community Based Organizations

UAC Academia

ADPs CSOs

RARPs Media
**Engagement of Stakeholders**

A large number of stakeholders are consulted during the priority-setting process. The priority-setting process that resulted in NSP 2007/08-2011/12 involved consultation with over 1000 stakeholders. The consultations have, in the past, taken on numerous forms such as during the Joint Annual Review (JAR) of the AIDS Partnership Forum in which the annual progress of the response is reviewed; and regional workshops for district consultation. Lastly, national level workshops were held for the CSOs, public sector and the PHA.

There is a considerable effort to involve different groups, especially those that would not ordinarily have made it to the priority-setting table. All interviewees agreed that the priority-setting process was consultative. However, there was some degree of dissatisfaction stemming from two interrelated issues. The first is the inclusiveness of the consultation process especially with regard to the district planners and the MARPs. For instance one respondent, when questioned whether there were any efforts to involve the MARPS responded:

> Hardly, hardly, because they tend to be marginalized groups or stigmatized. There is no platform to air their views. There is an attempt now through NGOs for them to air their views but I still see it as marginal. Very often the main guys determining the agenda rarely take the groups like the CSWs, truck drivers and fishermen serious. There is an attempt to get their representatives at the policy table but when I see these people sit at the table they are bringing their own ideas. (Government Planner 1)

A representative for the MARPs noted that current efforts to engage them are falling short because of the little time available to consult them and because the MARPs do not take the lead in determining their priorities in the workshops.

> No I don't feel like I am participating in the actual decision-making. It's a loaded question which I will answer as best as I can to get the true picture.... If you have a one-day workshop to discuss issues to do with, for example issues of MARPS that is not guided by the participants in terms of strategic direction but is guided by the consultant that alone begs the question is this real? Are we getting the true picture? So the time is never enough. (MARPs Rep)
The above responses suggest that existing mechanisms for engaging the MARPs do not foster an appropriate level of engagement for some groups.

Some challenges in engaging MARPS in priority-setting emerged from the interviews including the willingness and ability of MARPS and other groups like the general public or district heads to participate effectively in decision-making. For instance, one respondent noted that:

These stakeholders much as they masquerade most of them when they are in these meetings they don’t participate. Some of them send their juniors for these meetings. So when it comes to very technical discussions they just watch you. Especially civil society, much as they make a lot of noise, when it comes to technical discussions, their capacity to engage is very limited. Even districts, they are the implementers but when we are discussing issues related to implementation of the programmes they rarely articulate issues. (Government Planner 3)

Another challenge is the means of mobilizing the MARPs stemming from challenges defining the MARPS constituency for example:

One, we need to define the MARPs. We need to define those who are actually like the PHAs and from there, consultations can be held with them to get their views on what is affecting them in terms of capacity building or service delivery etc. (CSO)

Lastly, there are legal and structural barriers that prevent the mobilization of the MARPs. For instance:

Some of them have been engaged but some have not because the legal environment does not allow them to, for example, the CSW. Seating them at the table is hard. For some of the MARPs like the fishing community; they have not organized themselves into a group or organization. Even the MARPs network, does not associate with some of these groups so it is not clear who they are representing. (Government Planner 1)

The issue with involving the MARPs in this setting is that some of them are nomadic or mobile, so how do you pin them down and engage them in priority-setting? (District 1)

Reconciling competing agendas:
For such a highly consultative process that seeks to bring opposing views to the table, it is not clear how conflicting and competing priorities are dealt with in order to reach a compromise. The NSF 2000/01-2005/06 shows that a core group of 11 (the CG11) was constituted to come up with the final priorities. A similar process was used for the NSP 2007/08-2011/12 when a group of 45 people representing a wide range of stakeholders was constituted. This group met in a 2-day retreat and decided on the final list of priorities. What is not clear though, is the mechanism by which decisions are reached to include and exclude interventions. The criteria used to decide between different programs are not clear from the documentation available for review.

The analysis of the interviews suggests that the priority-setting process is not transparent in that rationale for decisions made are not made available either to all parties involved in the priority-setting process or the public. In addition, there does not seem to be a systematic and transparent process for narrowing down the long lists of desires or wants of every stakeholder. Several respondents interviewed were baffled by the way priorities were finally made, for instance:

> You expect some priorities to appear and then they don’t. Some that you didn’t expect make it. You know we actually feel like there are actual decision-makers out there. The process is not really transparent to people at the lower level. (MARPs rep)

> Is there transparency at national level from donors on how they want to spend their money? (CSO 2)

Another key theme that emerged in the interviews as a challenge to the priority-setting process is the perceived lack of transparency between stakeholders. The following comments demonstrate this lack of inter-stakeholder transparency:

> I think the partners (ADPs) tend to have their own hidden agenda. When they come in they are with you conceptually while they have their own hidden agenda. They come and appear technical and rational but behind they have their own priorities that they want to focus on. (Government planner1)
This lack of transparency undermines the legitimacy and ownership that the consultative nature of the process seeks to engender and ultimately compromises the implementation of the plan.

Lastly, an important issue that arose in relation to reconciling competing agendas is the lack of a mechanism to filter through the many lists of needs or priorities that are presented by the different stakeholders. Such a mechanism would ideally adjudicate between different interests to determine which of the many fronted claims for resource allocation is worth investing in. The end result of this would be a manageable list of priorities that could be, fully funded, implemented and monitored. One respondent suggested that the numerous priorities developed were in fact not ‘priorities’ because they were not subsequently rationalized and reduced to a more realistic number:

Like I have always told you, yes, it’s consultative, which democracy is. But without coming to an agreement or compromise, (it) is difficult to come up with an action plan. That is why you will see a list of 100 priorities. That list is borne of extensive consultation but no agreement is reached as to which are the priorities. Every stakeholder wants his priorities reflected. The PHAs want all their 15 priorities in. The people in M&E have 5-10 priorities in. And these are priorities that are within ‘priorities’. The same applies to governance and to finance. They all want their list of priorities in. So at the end of the day yes the process is consultative but that consultation without coming to a common understanding or compromise has led to priorities not being priorities. (CSO representative)

**Governance of the Priority-Setting Process**

The Uganda AIDS Commission (UAC) is the body charged with stewardship of the priority-setting and resource allocation process for HIV/AIDS in Uganda. It was established by statute 2, 1992 to coordinate the response to the epidemic. In order to fulfil this mandate the UAC established a multisectoral HIV/AIDS Partnership in 2002 to enable all stakeholders to participate in the national response. The UAC provides the secretariat for the HIV/AIDS Partnership. Of the structures available to UAC to carry out its mandate, the Self-Coordinating Entities and the HIV/AIDS Partnership Committee help in the priority-setting process. Briefly:
• **Self-Coordinating Entities** are a set of HIV/AIDS related constituencies that meet independently as well as participating in the Partnership Forum and having representation in the Partnership Committee. They include decentralised levels of government; Faith Based Organizations; government ministries; international NGOs; media, arts and culture; national NGOs; networks of people living with HIV/AIDS; Parliament; private sector organisations; research institutions and academia; United Nations and bilateral development group; and young people.

• The **HIV/AIDS Partnership Committee** which forms the steering committee for the National Strategic Plan. It includes representation of Ministries/Sectors, Self-Coordinating Entities, and donor partners (UAC 2008b).

In this capacity, UAC procures consultancy services for the priority-setting process, oversees the implementation of the process by the consultant and finally oversees the allocation of the resources under its management to different implementing agents. The stakeholders who were interviewed had mixed ideas regarding the performance of the UAC in this capacity. While some participants were satisfied with the leadership of the priority-setting process, others felt that the UAC did not do much to enforce the priorities selected for funding especially with regard to funds provided by donors.

> But even if we don’t have our own money all we need is effective leadership. I know places Tanzania, Mozambique, that have told PEPFAR if you are not using our national systems then “thank you but no thank you”. That’s from the Leadership. PEPFAR and Global Fund are using national systems. If the MOH and MOFPED told PEPFAR one day that these are the structures that we want PEPFAR money to pass through otherwise we are not interested, they would oblige (ADP3)

The result of this weakness is the development of parallel priority-setting processes in which ADPs develop priorities based on their core agendas and not the priorities that were collectively agreed on in the priority-setting process.
The Role of Evidence in Priority-Setting

Ideally, the priority-setting process should be based on sound evidence of what works in that setting. Review of priority-setting documents showed that, increasingly, attempts have been made to use the available evidence to inform the priority-setting process. For instance, the recently concluded National Prevention Strategy was informed by the Modes of Transmission Study (MOTS) that identified the high risk groups and the magnitude of the epidemic. This is evidence that was not available for earlier plans. In addition, a review of the literature on the effectiveness of different interventions for HIV prevention was conducted by Ministry of Health in 2008.

Apart from a situation analysis of the epidemic and the national response other evidence that is used in priority-setting for HIV/AIDS is cost information and the impact of interventions on the epidemic. Cost information is usually generated by the Resource Needs model and impact on the epidemic is generated by the GOALs model that was developed by the Futures Institute. In the most recent priority-setting process for HIV/AIDS in Uganda, attempts were made to collect cost data from HIV/AIDS service entities in order to inform the priority-setting exercise.

Other forms of evidence used in the priority-setting process include evidence on the resources available for priority-setting. A financing assessment was made by determining the commitments by each funding partner, including government, for the period covered by the strategic plan. This is corroborated by the interviews for example:

*I have participated in the HIV/AIDS priority-setting process in which I participated as a member of the Resource and Costing group. We were tasked with understanding the resources available and getting a sense of the resources that were used. We consulted the Futures group who used their resource needs model to project the costs of the epidemic and using three scenarios (mixed, optimum and normal) to estimate the coverage we needed and the cost of each scenario. We also did a situation analysis on the resources that informed our understanding of the availability of resources. National spectrum data fed into the resource needs model that projected the costs. (ADP 4)*

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However, most stakeholders noted that evidence on the cost-effectiveness of the interventions included in the response is not ever considered. In addition, evidence stemming from operations research and Monitoring and Evaluation findings is hardly ever considered in the priority-setting process.

_We mainly rely on evidence of effectiveness. However, cost-effectiveness is not usually considered. The data is not great and so it is not easy to tailor the intervention packages to this context. The tools are also not available to help us tailor the packages. The role of operational research in Uganda is limited._ (Government planner 2)

The interviews, however, identified a number of challenges with the use of evidence to inform priority-setting for HIV/AIDS in Uganda. The challenges that emerged can broadly be grouped in three categories. These are challenges in the supply of evidence, the demand for evidence and lastly, in the translation of existing evidence into practice.

**Evidence Supply:**

The general view is that the lack of evidence constrains the priority-setting process. This lack of evidence cuts across all the levels of decision-making i.e. the national level and the district level. In most cases, the evidence that is required is evaluation of the performance of the response at a specific point in time. Evaluation requires baseline evidence in order to determine change, as some stakeholders noted, for example:

_One of the things I noted is that there seems to be a disconnect between the research or the evidence and the priority-setting process in terms of when the evidence comes in. Sometimes the evidence comes in when the priority-setting has already been done and so in a sense we are still shooting blindly._ (Government planner 2)

The difference in timing of the priority-setting process and the research processes is a major factor that constrains the use of evidence in the priority-setting process.

_With time things have evolved, we are getting better at it, seeing the need of targeting better-an evidence-based response. At that time we were trying to address everything and yet you can't. You have to have evidence, for example, where the new infections are. We did the MOTS much later. Now that we have our current plan, it is much better._ (ADP2)
The lack of evidence cuts across decision-making levels. Most respondents at the district level note that even when the evidence is available, it is not sufficiently sensitive enough to inform decision-making at the district level.

*At both the district and national level, the lack of good quality data constrains the process. More so, at the district level where prevalence rates are provided for the regions but are not district-specific. In addition the estimates (of what – in brackets non-italics) are not plausible." (District 1)*

The evidence for key population groups that have been identified as most-at-risk of HIV/AIDS infection is also lacking and therefore constrains priority-setting for groups with the greatest need.

*With regard to the MARPs, that does not work because there is limited available data. That means research on baselines, operational research should have been priorities, and they were not. Therefore we will have the same problem of no (baseline) data for MARPs. (MARPs Representative)*

Another factor that constrains the supply of evidence necessary for priority-setting is the differences between the research and the priority-setting agendas. The evidence suggests that in most cases the main producers of research (academia) conduct research based on an agenda that is not driven locally and may be driven by external funding entities. As such, even though a large amount of research-based evidence is produced annually, it hardly addresses the priority-setting needs of the decision-makers, and in particular, policy-makers, as one respondent noted:

*The problem has been linking the evidence to policy-making. That has been a problem for us. Many of our researchers are driven by top-down things. People are following the dollars. They do not commission research according to agendas set in the country. (ADP4)*

*Evidence Demand*

The factors that constrain evidence informing priority-setting are not limited to the supply of the evidence. The interviews with stakeholders revealed that the poor demand for the evidence by the decision-makers may also be responsible. In particular, the failure of the health sector at several levels and HIV/AIDS policy-makers to set a research agenda may be partially responsible for this.
Most of the time, we are limited by availability of good evidence. Where the evidence is good, the tradition of using evidence to guide decision-making is low. For example, the routine use of M&E data in informing priority-setting is in its infancy. It is mainly done by NGOs but not by public (community members) and districts. (District representative)

It’s not really their (researchers) fault because as a sector we have also been unable to set our own agenda. Research is not contributing a great deal to agenda setting as we would have liked it to do because many times it is not policy relevant and also not following an articulated research agenda that is decided on by the sector. So many times we use the rule of thumb or we set the agenda following the dollars. (ADP4)

In addition to the above, interrogation of the interview data revealed that there is a lack of prioritization of research generally by the government and health planners. This is depicted by the lack of a research agenda.

“There is no prioritization of research. Maybe the planners think that the evidence is enough.”

(MARPS rep)

Most of the research is funded by external funding partners, who have their own agendas, as noted by some respondents. For, instance:

Knowledge Translation

Another key issue that emerged in the interview data as a constraint to the role of evidence in informing priorities is the failure to package research findings in a language that decision-makers can use and the capacity to do this. There was general consensus among stakeholders that there is a need to establish systems that will collate and synthesize relevant evidence and translate it into language that decision-makers can understand.

The other bit that requires working on and is a capacity thing is packaging research findings. As researchers we are good at talking to each other... Unless I know the language of the other person, I will not be able to understand it. The policy people are looking at the research and they can’t recognize it. It is not appealing to them, it’s not making any statement, and so they don’t use it to inform policy and decisions. (Government planner2)

There is a general lack of capacity of decision-makers to understand the research findings.
Capacity of policy-makers to understand, synthesize, and apply it is very minimal. (Government planner 2)

The need to package research findings for decision-makers is crucial, especially at lower levels of decision-making.

So I think we need to think about how we package it so that it makes sense to the person making policy, to the person making decisions. That is an area that still... I think there is increasing recognition and I hear people talk about it. But how much is being done so that the LC IV or V chairman, who are in charge of allocating resources in charge of deciding where money should go, how much is being done to make it appealing to them? (Planner and ADP representative)

Lastly, the tension between local politics and the evidence constrains evidence-informed decision-making for HIV/AIDS in Uganda. When asked about the influence of evidence in decision-making, many stakeholders noted that while the use of evidence has been increasing, political pressures to include or exclude interventions often override decisions based on evidence.

There are times (when) the evidence overwhelms the politics and vice versa. For example, Safe Male Circumcision, politicians were against it but when they saw they evidence, now it has somehow been accepted. Even Abstinence, Being Faithful and Condom Use (ABC), it is a good strategy but when politics came into the strategy, it resulted in new infections because for a while there condoms were not promoted. (Government planner)

The influence of politics on the role that evidence plays is not restricted to the government; it also stems from the political agendas that are inherent in many donor agencies.

Donors are a difficult group to understand. I think they are in for evidence as long as it plays in their favour. If it does not play in their favour they are not for it that much. You have to look at donors in two categories. If you talk of multilaterals, those like the UN, they are more into evidence, but bi-laterals it’s more about agendas. As long as it does not support their agenda, chances of supporting it are minimal. The politics still comes into it. (ADP5)

Interrogation of the interview data highlighted other constraints to the use of evidence in priority-setting processes. The limited amount of time available for the priority-setting process constrains the generation and use of some kinds of evidence to inform priority-
setting. This is with special regard to research activities like cost-effectiveness and qualitative studies, each of which might require some time to generate evidence. A related issue is the perceived lack of available technical capacity to conduct studies like burden of disease and cost-effectiveness. For instance one respondent noted that:

The capacity to produce such analyses in a timely manner- the research team (local research teams producing such evidence in a timely manner) is limited. Capacity of policy-makers to understand, synthesise and apply it is very minimal. The dynamics of policy-making in the country are also a hurdle to overcome. (ADP 5)

The Level of Decision-making

According to both the document reviews and the interviews, most priority-setting occurs at national levels involving national level stakeholders, although consultations are made with the districts (UAC 2000, 2008a). For instance the NSP 2011/12-2014/15 reports that districts were consulted:

Consultations with key primary and secondary stakeholders were conducted at national, district and community levels. At the district level, consultations were held with all the technical and management teams in group sessions including Chief Administrative Officers (CAOs), and all the District Technical Officers, civil society organizations (CSO), agency Coordinators, Directors, program Officers and other selected staff. (UAC 2011a)

The interviews that were conducted also confirmed that consultations are made with the district officers:

They normally call us for planning workshops at the national level whenever they are reviewing and developing the National Strategic Plan. We even attend the Joint Annual Reviews. (District planner2)

The decentralized nature of the health system and the HIV/AIDS response implies that decision-making should occur at all the levels of administration. That this occurs was noted by several district officers that were interviewed. For instance one District Health Officer noted that:

We plan once a year for HIV/AIDS activities. We plan for the activities according to the resources that we have available. At district level we know our priorities and the players at the district level
better than the central level does. After we make the work plan we send it to MOH, our mother ministry, and Uganda AIDS Commission. (District planner)

Even though three district planners felt that their priority-setting process at the district level was satisfactory, other stakeholders tended to disagree. In general some respondents felt that district administrators did not put much effort in either consulting with the community or using evidence to inform priority-setting. In addition, others felt that there were no systems in place to help them do this.

The problem is these people who deliver the service (district) don’t want to sit down with the people at the community. Sometimes these people sit in their offices and develop their work plans. (Government planner)

In terms of priority-setting processes both for HIV/AIDS and the Health sector, at the national level they tend to be highly consultative and involving the donors, CSOs, government and to an extent academia. As you go lower to the district and sub county that becomes difficult. You can’t demonstrate that model at that level. (Government planner)

Other Influences on the Priority-setting Process

Our study identified other influential factors in the priority-setting process, including the need to harmonize the strategic plan with broader policy goals at both national level and global levels. For instance, the documents that were reviewed showed that one of the guiding principles of the priority-setting process was to align the plans with the existing Health Sector Strategic Plans (HSSP), as well as the National Development Plan. For instance, the NSP 2007/08-2011/12 reports that the plan was influenced by many national polices as the quote below shows:

Other existing policies that influence HIV/AIDS include the National Health Policy, Local Government Act, the Plan for the Modernization of Agriculture; and Universal Primary Education. Uganda’s Poverty Eradication Action Plan (PEAP) is the blueprint for national development. The PEAP identifies HIV/AIDS as a crosscutting issue and mandates all public institutions to factor HIV/AIDS into their development plans. (UAC 2007)

Indeed, one of the rationales for the development of the NSP 2011/12-2014/15 was to align the response to HIV/AIDS with existing national plans as well as to address
international commitments to reach the targets set in the millennium development goals as can be seen from the quote below:

*A revised NSP aligned to the NDP and in view of the NHP and HSSIP was required to continue driving the timely and effective management of the national HIV/AIDS response for the next four years (2011-2015) (ADP2)*

Uganda has committed herself to the Millennium Declaration and the Millennium Development Goals (MDGs), which are spelt out in the Declaration of Commitment of the United Nations General Assembly Special Session on HIV/AIDS (UNGASS). Goal six of the MDGs focuses on halting and reversing the trend in the spread of HIV/AIDS infection by 2015. A Revised NSP was therefore envisaged to keep on guiding the response towards the attainment of this goal. (UAC 2011b)

The second factor that was evident from the documents/interviews was the impact of the technical guidance from normative institutions like the World Health Organization (WHO) and Joint United Nations AIDS Programme (UNAIDS) influences countries’ development of priorities for HIV/AIDS. For instance, guidance from WHO on when to start antiretroviral therapy in the face of resource scarcity as well as the treatment combinations influences the priorities for HIV/AIDS treatment. More recently, the guidance provided by UNAIDS on prevention strategies called ‘combination prevention’ influenced the formulation of the National Prevention Strategy. In our interviews, only one respondent commented on the role of these institutions in the priority-setting process.

*I don’t think all was lost….I don’t think at that time UNAIDS was also very clear because we were using the UNAIDS framework to guide us to develop our own. With time things have evolved, we are getting better at it, seeing the need of targeting better, an evidence-based response. (ADP representative)*
7.2.3. Priority-setting for HIV/AIDS in Uganda: Considerations for the Future (The User’s Rationale)

Regarding the factors that any systematic process for priority-setting should address or embody nine crucial factors were identified from the interviews with the key informants. These included:

**Evidence:**

The respondents recommended that the priority-setting process should be based on up-to-date evidence. Specifically it was suggested that the kind of evidence used should not be limited to efficacy data but that more efforts should be made to base decisions on evidence on the effectiveness and feasibility of interventions, in particular, evidence from operational research and from Monitoring and Evaluation findings. In addition, evidence on cost-effectiveness and affordability of interventions is essential to inform the priority-setting approach. Other kinds of evidence that were felt to be important were the evidence on feasibility, acceptability and sustainability of the interventions. For instance, one respondent remarked that:

“Cost-effectiveness is not enough, we need to consider feasibility, acceptability, equity sustainability, and we need to assemble comprehensive information to inform priority-setting. Most studies are partial.” (Government Planner)

However, it was noted that despite the desirability of technical analyses such as cost-effectiveness analyses, some stakeholders noted the difficulty of institutionalizing processes that incorporate them although they noted that these challenges are not insurmountable as noted below:

“One capacity to produce such analyses in a timely manner, research team- local research teams producing such evidence in a timely manner is limited. The capacity of policy-makers to understand, synthesize and apply it is also very minimal. The dynamics of policy-making in the country are also a hurdle to overcome and also political pressures in terms of do this now and also my preference is this. However, do not think that it cannot inform priority-setting for the foreseeable future, I think the word is that it is a challenge
Another key theme that emerged from the interviews regarding the evidence was the importance of making data needs tractable. This was in particular regard to the collation of the different kinds of evidence. Thus a priority-setting approach should be able to provide for data tractability. One respondent for instance noted:

“We should have a centralized repository of evidence where we can readily find all the information available for the priority-setting exercise.” (ADP Representative)

The Values

It is well accepted that priority-setting is a value-laden exercise and that these values are influenced by the context. The values that emerged frequently as crucial in guiding the priority-setting exercise were the effectiveness, cost-effectiveness, the burden of disease or need as well as a consideration for equity with regard to gender sensitivity and a regard for the most at risk although this could be re-interpreted in terms of the burden of disease. Other important issues were the affordability and feasibility of the interventions as well as their cultural acceptability.

“Gender considerations are important; the consideration of these is low in decision-making. Equity is another important factor. Cost-effectiveness of interventions and burden of disease should also be considered”. (Government Planner)

“In my opinion values that should be considered, are the effectiveness of the intervention. As much as possible a downward trend in the costs of interventions and their cost-effectiveness should be considered. It should be at the center stage of priority-setting.” (CSO Representative)

Improved Governance

The leadership of the priority-setting process in Uganda (Uganda AIDS Commission and the related AIDS Partnership Forum) were pointed out as providing good stewardship of the process of the determining the priorities in the national response to HIV. However, it

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was recommended that the leadership of the process should be strengthened in order to enforce the priority-setting decisions made such that the disbursement of funds (external aid and domestic funds) is aligned to the priorities determined by the national HIV/AIDS priority-setting process

“Yes two things, we have to have our own money and we also have to have effective leadership. Then that will change things. But even if we don’t have our own money, effective leadership will suffice. I know places Tanzania Mozambique that have told PEPFAR if you are not using our national systems then thank you but no thank you. That’s from the leadership. PEPFAR and Global Fund are using national systems. If the Ministry of Health and Ministry of Finance told PEPFAR one day that these are the structures that we want PEPFAR money to pass through otherwise we are not interested they would oblige.” (ADP Representative)

Transparency

Respondents also recommended that the approach should encourage transparency between the different stakeholders in the priority-setting process. This was in particular regard to transparency between ADPs and local stakeholders, between technical and non-technical stakeholders (CSOs and MARPS). For instance:

Right from the beginning we should consider transparency at national level. This should start from donors on how they want to spend their money? Is information available? These are all factors that will affect prioritization. (CSO representative)

Judgment

The need for a mechanism by which competing interests can be reconciled also emerged as an important factor that the approach should embody. This reflects on one hand the plurality of voices in the priority-setting process and the need to reach consensus and on the other hand resolution between competing values or principles that would in their own right result in different priorities. This was reflected interviews with statements like:

We need a form of guided democracy. How far should equity influence the priorities that we set? To what extent should we be pro-poor? The approach that we should adopt is one
that should be able to reconcile all those irreconcilable issues... The problem maybe how you assign weights, there might be a huge disparity in the weights from policy-makers and the weights from communities. (ADP representative)

Targeted approach for priority-setting

Respondents also emphasized the need for a priority-setting approach to result in a response that targets the populations that need it the most (in this case where the risk of infection is the highest). This has both equity implications with regard to the notion of need since where the risk is highest is where the need is highest. Within the Ugandan context it also has the equity implications of providing better options for the socio-economically disadvantaged.

The process of priority-setting should have explicit targeting of high risk groups and not provide general response for everyone. (District Planner)

A targeted response is important. You have to think of geographical targeting where are they found (high risk populations)? They are mainly in urban areas. The commercial sex workers: that is where they stay. If you look at the MSM, drug addicts are all in urban areas. Even the boda cyclists who are considered high risk are in the urban areas. The fishermen are around the fishing grounds. Where do you want to put the resources? Are they prioritizing these (populations)? How much have they put in these particular target groups? (CSO representative)

Consultative

Respondents remarked that the process of priority-setting is highly consultative including very many different stakeholders. However, the majority of stakeholders noted that it is important that the level of engagement and participation of non-technical stakeholders should be increased particularly general public and the MARPS. In particular, it was noted that the engagement of MARPS should be an ongoing arrangement in which the different MARPS groups are identified, engaged to determine their issues and the interventions and implementation mechanisms best for them.

The last is beneficiaries and the carers. These are critical at priority-setting and that is where the top-bottom and bottom-up needs to be balanced. (ADP representative)
So the time is never enough. It’s always rushed and therefore you miss out on key issues that may be subtle but are important. And I will stick again to the issue of MARPS because for anyone to intervene with them (and I’ve seen this over the years) you must build trust because they are stigmatized, ostracized, and persecuted. So if you think you are going to bring your beautiful nicely designed programs and implement them that program is doomed to fail and that is why they have exponentially higher HIV rates than other populations and yet we know they are bridging populations. So they need in-depth meetings or fora to discuss their issues especially when we talk about greater involvement of the MARPS. You know there always these guys who are always flying around the world and are not in touch with the MARPS e.g. the sex worker who is actually doing the work last night on the street. You see once you miss out on that then… There should be a deliberate effort to get feedback every year because eventually it will add up to the feedback they need for the next National Strategic Plan. (MARPS representative)

Level of decision-making

All respondents felt that priority-setting for HIV/AIDS should involve and cater to all levels of decision-making. The consensus was that the priority-setting at the strategic level should be conducted at the national (macro level). This should involve feedback from lower levels of decision-making (district and community). In addition, priority-setting should occur at the lower levels of decision-making to allow the districts to implement interventions that are tailored to the population-risk mix in that district.

Priority-setting should occur at both levels- at the national and district level because some resources are distributed at national level and some at district level and some districts may have particular areas that they want to focus on because they are peculiar to those districts. (District planner)

Certain decisions can be made at certain levels. In developing the National Strategic Plan, for example, we need to involve people from district but at a certain point the strategic direction should be made at national level where you have a national view. Different implementation decisions should be made at district level but strategic decisions should be made at national level. There are different levels of decision-making and the resource allocations made at different levels. (ADP representative)
Work within set structures

The respondents also remarked that it is essential for any systematic approach to priority-setting for HIV/AIDS to work within set systemic structures in order to be adopted. These structures include the routine data collection mechanisms such as the demographic health surveys for the purposes of evidence as well as the decision-making structures such as the UAC, district administrative structures, international agreements like the Millennium Development Goals and the like. As one respondent noted:

There are set structures that the system has been using to set priorities. It is important to develop a mechanism for how to work with these structures... like the structures for generating evidence, structures for strategic planning and see how it fits in, working with these people so that before they know it they are already on a very systematic path of priority-setting. (Government Planner)

Individual Champion

Another important issue that emerged as important for a systematic approach to priority-setting was the importance of a champion that would drive the process of adoption and institutionalize the approach.

It requires a champion to broker the framework and the decisions that follow on from it. (ADP Representative)

Identify champions within the system for example the Director General of health services, the Permanent Secretary of MOFPED to help get this adopted. One way of doing this at any of the levels is anyone who appeals to the media can champion it and it will be bought. (ADP representative)

Affordability of the priority-setting process

Lastly many respondents highlighted the costs of the priority-setting process as likely to be an important issue. Many noted that in many cases the costs are high and thus making the possibility of systematic process like the Burden of disease study difficult to institutionalize. This highlights the need for the priority-setting approach to be affordable.
It is the cost that is prohibitive. But you know we have been funding more costly things. So I am not sure that that is such a big constraint. It may also speak to the value that different people who make the decisions place on an assessment like the burden of disease study because if people are determined, the money can be found. (Government Planner)

Money is a major constraint because if you had the money you would use all ways to gather the specific information, you would go to the media, TV, radio and consult but also have the capacity to go to the gather feedback, synthesize it and make it part of the process. So you need money to be able to do that. (ADP representative)

7.3. Generation of the Checklist

The following criteria were distilled from the interviews. They were selected because they emerged as important features. They are shown in the table below:

<table>
<thead>
<tr>
<th>Criterion</th>
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<tbody>
<tr>
<td>1. The framework should provide a consultative process that includes all key stakeholders in the response</td>
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<td>2. The framework should include a consideration of available local and internationally relevant evidence on effectiveness.</td>
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<td>3. The framework should provide for an affordable priority-setting process that is easy to institutionalize</td>
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<tr>
<td>4. The framework should be inclusive of all levels of priority-setting (combined bottom-up and top-down approach)</td>
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<tr>
<td>5. The framework should provide for transparency on two fronts: Externally the decisions and the rationales behind them should be transparent to anyone. Internally there should be transparency between stakeholders</td>
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<tr>
<td>6. The framework should provide a mechanism that ensures or is cognizant of the need for good and effective governance of the priority-setting process.</td>
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<tr>
<td>7. The framework should require decision-makers to select and target interventions to the populations that need them the most (equity concerns)</td>
</tr>
<tr>
<td>8. The framework should provide a mechanism of achieving a good balance between technical evidence and the other political objectives of the stakeholders so that consensus can be reached (Judgment)</td>
</tr>
<tr>
<td>9. A regard for cost-effectiveness in light of limited resources and how it is presented to the stakeholders in a manner that is easy to understand</td>
</tr>
<tr>
<td>10. The framework should provide a mechanism for linking resource allocation decisions at all levels during implementation.</td>
</tr>
</tbody>
</table>
A questionnaire was administered to 12 respondents who agreed to participate in the process of weighting the checklist. The respondents were asked to attach numerical values to each criterion. The numerical values were to reflect the relative importance of each criterion. A criterion with a value of 1 was the least important value and a criterion with a value of 10 was the least important criterion. In addition, the respondents were asked to attach a numerical value between the ranges of 1-10. These values would be threshold values such that a framework that scored below the threshold would be considered as having ‘failed’ on that criterion. The results of the weighting process and the thresholds that were generated by the 12 participants are shown below:

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Weight</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The framework should provide a consultative process that includes all key stakeholders in the response</td>
<td>1.25</td>
<td>6.29</td>
</tr>
<tr>
<td>2. The framework should include a consideration of available local and internationally relevant evidence on effectiveness.</td>
<td>1.25</td>
<td>5.29</td>
</tr>
<tr>
<td>3. The framework should provide for an affordable priority-setting process that is easy to institutionalize</td>
<td>1.32</td>
<td>5.29</td>
</tr>
<tr>
<td>4. The framework should be inclusive of all levels of priority-setting (combined bottom-up and top-down approach)</td>
<td>1.16</td>
<td>5.86</td>
</tr>
<tr>
<td></td>
<td>The framework should provide for transparency on two fronts: Externally the decisions and the rationales behind them should be transparent to anyone. Internally there should be transparency between stakeholders</td>
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<tr>
<td>5.</td>
<td>0.98</td>
<td>4.00</td>
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<table>
<thead>
<tr>
<th></th>
<th>The framework should provide a mechanism that ensures or is cognizant of the need for good and effective governance of the priority-setting process.</th>
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<tr>
<td>6.</td>
<td>1.05</td>
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<tr>
<th></th>
<th>The framework should require decision-makers to select and target interventions to the populations that need them the most (equity concerns)</th>
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<tr>
<td>7.</td>
<td>1.39</td>
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<tr>
<th></th>
<th>The framework should provide a mechanism of achieving a good balance between technical evidence and the other political objectives of the stakeholders so that consensus can be reached (Judgment)</th>
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<tr>
<td>8.</td>
<td>1.05</td>
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<tr>
<th></th>
<th>A regard for cost-effectiveness in light of limited</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>1.05</td>
</tr>
</tbody>
</table>
resources and how it is presented to the stakeholders in a manner that is easy to understand.

| 10. The framework should provide a mechanism for linking resource allocation decisions at all levels during implementation. | 0.89 | 5.43 |

7.4. Discussion

This is the first paper to discuss, from the perspective of local decision-makers the important features that a systematic priority-setting approach ought to embody or be cognizant of. The features discussed above reflect many factors that have emerged as important in the priority-setting literature generally and specifically, within this context. The local stakeholders value transparency within the priority-setting process amongst all stakeholders. This is in keeping with normative guidance in the literature. Daniels and Sabin have developed a framework that emphasizes transparency in the priority-setting process discussed in Chapters 3 and 5. However, as can be seen from the weighted checklist, even though transparency is important to the stakeholders, it is not by far the most important criterion in the checklist.

In addition, the requirement for a targeted approach to priority-setting is relevant for this context. This is especially so given the fact that despite that the epidemic is a generalized epidemic (greater than 5% HIV/AIDS prevalence) (Wabwire-Mangen et al. 2008), there is marked geographical heterogeneity within the country and some sub-populations more affected than others. This need for targeted interventions makes a strong argument for marginal analysis so that sub-populations that benefit most from a particular intervention and the type of intervention or implementation modality that provides the most benefit for different sub-groups can be identified and implemented. In addition, the need for a
targeted approach to priority-setting sets the case for consideration of equity. The particular notion of equity that this speaks to is distribution according to need which may be defined in terms of capacity to benefit or severity (burden of disease). This suggests the need to consider distributive implications of the decision-making process explicitly. It is important to note that this might clash with other important concerns of distributive justice like maximizing the benefit for all if interventions that benefit the most at risk (who may be fewer) are selected at the expense of those that would benefit the majority who may not be at high risk.

The finding that equity is considered more important than cost-effectiveness of interventions in this context lends support to the findings by Kapiriri et al who found that policymakers for the health sector ranked distribution of resources according to severity of disease higher than the distribution based on the cost-effectiveness of the intervention (2004).

Thus this makes the strong case not only for an explicit approach to priority-setting but also one that is able to reconcile the conflicts that inevitably arise with regard to the values identified above including cost-effectiveness and concerns on distributive justice. There are many approaches that have been developed in the literature that recognize this tension and provide useful suggestions in how to achieve this balance. These include the use of weights as in the Multi-Criteria Decision Analysis approach (Baltussen & Niessen 2006; Baltussen et al. 2006; Jehu-Appiah et al. 2008) or the use of second filters (Carter, Rob. 2001; Carter, R. et al. 2008).

Lastly the role of individual champions to broker the adoption and institutionalization of these approaches is very important. The experience in Oregon is a clear example of the necessity of this need. In this instance, the Leader of the Senate championed the priority-setting process for determining Oregon Health Plan (Fox & Leichter 1991). Locally, the influence of donors also championed the adoption of the burden of disease study in many LICs including Uganda (Bobadilla, JL & Cowley 1995).
7.5. Conclusions:

The rise in the number of new infections in HIV/AIDS in Uganda and the fact that the response has not been aligned to the epidemic makes the case for more systematic approach to priority-setting for AIDS. Despite the fact that there is a large number of systematic approaches that have been developed, there have not been adopted. This paper has presented important features from the perspective of local policy-makers in Uganda that should be embodied or addressed by such priority-setting approaches.
Chapter 8: The Checklist

8.1. Introduction

The main aim of this thesis has been to develop and trial a framework that can inform priority-setting for HIV prevention in Uganda. To do this, part of the methodology was to develop a checklist that could be used to assess the suitability of existing systematic approaches to priority-setting for adoption in this decision context.

Part B of this thesis has mainly been geared towards this aim. In order to develop the checklist, the criteria developed by Gold et al. (discussed in Chapter 6) have been used. These include the theoretical rationale (based on the contribution of economics), the ethics rationale, the pragmatic rationale and the users’ perspective. In addition, the literature review on existing checklists informed the development of this checklist.

8.2. The Checklist

The elements of the checklist are included in Table 8.1.

Table 8.1: Checklist for Scoring the Frameworks

| Criterion 1: Does the approach present a well-defined and answerable research question (T, P, U) that: |
| - Reflects the objectives of the decision-making process for which it is intended? |
| - Reflects the perspective of all relevant stakeholders? |
| - Reflects the decision context? |

| Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P) |
| - Does this concept of benefit reflect what is appropriate (captures all the important aspects of social welfare affected)? |
| - If so, how are all the relevant elements aggregated within this evaluative space (weights)? |
| - Are the summary measures of the concept of benefit feasible in this decision context? |

| Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U) Specifically: |
| - Is there a mechanism for generating options for change? If so, is there a mechanism for eliciting the criteria by which the options for change are selected? |
| - Is there marginal analysis of costs and benefits? |
| - With regard to HIV/AIDS in Uganda, does it provide a mechanism for assessing changes in the scale of the service or scope of the response, or changes in sub-populations or target populations? |
Is there consideration for the opportunity costs? Specifically, does the approach allow for the generation of options for change (including the current interventions rolled out) and the consideration of the opportunity cost of each?

**Criterion 4:** Does the approach specify the decision rules for determining the worth of the interventions? (T, P)
If so, are the decision rules suitable for the priority-setting question?
How are multiple dimensions in the concept of benefit weighted and aggregated?

**Criterion 5:** Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)

**Criterion 6:** Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?
Is there rigour in the conduct of the cost analysis and identification, measurement and valuation of costs and benefits in line with the chosen perspective of the priority-setting process?
Is there an analysis of uncertainty?

**Criterion 7:** Does the approach provide a mechanism for consultation with relevant stakeholders (including the non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)
Is this process transparent and fair?
Does it specify mechanisms of selecting and engaging the public and other non-technical groups?
What are the mechanisms for incorporating their views to influence priority-setting decisions effectively?

**Criterion 8:** Does the approach provide for operational efficiency? (P, U) Specifically:
- Is the approach likely to be affordable and require few human and financial resources to allow institutionalisation?
- Is the approach likely to provide priorities in a timely manner with little interruption of the cycle of planning and implementation and evaluation?

**Criterion 9:** Does the approach provide for the need for judgement in the priority-setting process, in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)

**Criterion 10:** Does the approach provide for a mechanism of reporting (T, P, U):
- The priority-setting decisions, the rationales for each decision and the weight given different values or ethical principles?
- The decisions in a manner that policymakers, members of the public and implementing partners can understand and that allows for generalisation of priority-setting results to the local contexts, such as districts and the strength of the evidence used in the process?

**Criterion 11:** Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U) Specifically:
- Are the leadership structures specified (advisory panel, technical working group)?
- Are the roles of each leadership structure specified by the priority-setting approach?

### 8.3. The Rationales Underlying the Criteria

#### 8.3.1. The Theoretical Rationale

The theoretical rationale was informed by the discussion in Chapter 4. It was made clear in the discussion that, normatively, although welfarism is more theoretically developed than the non-welfarist frameworks (extra-welfarism, DMA, empirical ethics and
capability approach), the assumptions underlying it do not adequately reflect the experience of the real world. Thus, it is of little use in offering guidance to decision-makers on what the ideal allocation pattern should be. On the other hand, the less developed theories, such as extra-welfarism and DMA, have gained ground as normative frameworks to guide resource allocation. The evaluative space in these frameworks is broadened to include the non-goods characteristics of social welfare, such as health and other characteristics that are important to social welfare. In addition, they are able to incorporate distributional concerns, such as equity.

The three economic evaluation techniques arising from this framework include CBA, CUA and CEA. CBA is based on welfarism and is arguably the more theoretically valid approach. It provides information on whether it is worthwhile to fund a programme. It is also able to inform collective priority-setting across different sectors, given the fact that benefit is measured and valued in monetary terms. However, the main limitation is the feasibility and practicality of assigning monetary values to life. Methods that have been used for valuing health and life using monetary values have been challenged with regard to their congruence with theory, feasibility and bias. The paucity of studies that have been conducted using CBA and the lack of any collective priority-setting exercise based on this testifies to the lack of acceptability.

CUA and CEA have been well received by decision-makers in many settings, including LICs and health economists in general. CUA has particularly been used to inform collective priority-setting in many settings, including LICs where DALY-based CUA has been used. In addition to its ease of use, the technique offers ways that issues important to priority-setting, such as equity, can be incorporated. This makes it useful as a technique for priority-setting.

In general, economic evaluation techniques can be used to inform collective priority-setting. They offer a way to:

- define a well-posed research question, considering the objectives of the decision-maker, the decision context and the perspective (Criterion 1)
• define the concept of benefit (Criterion 2)
• conduct marginal analysis of the interventions (Criterion 3)
• assess the opportunity costs of investment in different priority-setting programmes (Criterion 3)
• provide decision rules for determining the worth of the programmes (Criterion 4)
• Provide for reporting of the priority-setting decisions (Criterion 10).

In addition, the emergence of DMA as the preferred normative framework to guide priority-setting makes a strong argument for due process (Criterion 7) and the need for judgement (Criterion 6).

8.3.2. The Ethical Rationale

The criteria arising from the contribution of ethics come from the discussion in Chapter 4. It was established in Chapter 4 that there are many ethical frameworks. In health and HIV/AIDS, the predominant frameworks include deontology and consequentialism, which operate at different levels and result in conflicting priorities. In addition, the notion of distributive justice and related theories emerged as important for priority-setting, chiefly because priority-setting almost invariably results in winners and losers; thus, the issue of fairness is important. More importantly, it also emerged that the multitude of principles and theories invariably conflict and result in potentially different priority-setting scenarios. Given the fact that, unlike economics, there are no rules to decide between different conflicting principles, there is need for recourse to procedural justice and thus a need for due process in which transparent and fair decision-making fosters legitimacy. Thus the main contribution of the ethics rationale in this checklist stem from the need for:

• due process, in which the conflicts between different principles are resolved
• The need for judgement within the decision-making process.

Last, the discussion on ethics raised the important issue of equity and how it is defined and used. Key emergent points were the fact that many different notions of equity exist depending on the distribuendum, and there is no clear-cut guidance on which notion of
equity is the most appropriate for priority-setting. It is clear from the discussion that the relevant notion of equity is context specific and should be determined empirically. Most importantly, the need to include a consideration of equity emerged as an important issue, particularly for LICs such as Uganda. This makes the strong case for:

- the definition of the concept of benefit to pay specific attention to how equity is incorporated in the concept
- The rationale for judgement in order to weigh technical evidence against other values of importance to the decision-maker.

8.3.3. The Pragmatic Rationale

This rationale was informed by the discussion on the empirical experience of priority-setting in LICs and high-income countries. The experience in Oregon particularly underscores the need to set the research question with the objectives of the decision-makers clearly outlined and understood by the researcher. In addition, it underscores the importance of defining the concept of benefit early in the priority-setting process and aligning it to the decision-makers’ objectives. This is supported by the experience with the BOD study in Uganda, where the concept of benefit used in the priority-setting exercise ignored equity considerations of importance to decision-makers.

The issue of data tractability emerged in all the experiences described in Chapter 5. Many jurisdictions that attempted priority-setting based on technical analyses encountered challenges in determining good quality data, and often relied on expert opinion. This lack of adequate data was more prominent when informing horizontal priority-setting. Many jurisdictions instead limited technical analyses to vertical priority-setting, and thus made the data needs tractable. The experience in almost every country studied also highlighted the importance of judgement in the priority-setting process. The role of judgement has emerged as important in order to situate information resulting from technical analyses within a discussion of other values that are important in the decision context. This was the main feature arising out of the experience in Oregon, and is certainly relevant to LICs.
The importance of public consultation and consultation of groups that have a stake in the priority-setting process is also clear from the empirical experience. In places where the public has been consulted and where their input has been used to inform priorities, the decisions have been accepted by the public. In LICs, this has been demonstrated as desirable, although a number of challenges—such as how to engage the public—have to be overcome. This is of particular relevance to priority-setting for HIV/AIDS in Uganda, where there are many different groups disproportionately at risk.

Another important aspect particularly relevant for priority-setting in LICs that also emerged as important for priority-setting in developed countries is the need for operational efficiency and affordability in the priority-setting approach. In countries such as New Zealand, this emerged as an important concern for stakeholders regarding the reliance on technical analyses for priority-setting for the entire health sector, given time and other resource constraints. This is particularly important for LICs, where resource constraints are more severe.

8.3.4. The Users’ Rationale

The users’ rationale in this study was informed by empirical work with stakeholders in Uganda, and is discussed in Appendix II. Summarily, the main desirable features of a priority-setting approach for the prevention of HIV/AIDS were captured in a stakeholder’s list of desirable features that was developed based on the views of local decision-makers, and is discussed in Appendix II. The list of desirable features was developed and weighted by local decision-makers. It exhibits marked similarity with the checklist developed through consideration of all four rationales in this study. Areas of similarity are:

- the recognition that the priority-setting process should be consultative and involve all the relevant stakeholders
- the recognition that equity is important for priority-setting for HIV/AIDS in Uganda
- the consideration that cost-effectiveness is key for targeting the MARPs and for improving efficiency
• the recognition that the approach to priority-setting should be affordable and efficient because of the time constraints on the priority-setting process
• the recognition that transparency in the priority-setting process is important to foster the legitimacy of the decision-making process
• the importance of judgement in the priority-setting process
• The emphasis on good institutional capacities for governance of the priority-setting process and to facilitate effective implementation of decisions.

However, there were also some points of difference, including:

• The specification of the need for a well-posed research question for the priority-setting process is something that was not explicitly recognised by the decision-makers who participated in this study (this rationale stems mainly from economic theory and the experience of priority-setting in contexts such as Oregon).
• The specification of a good reporting mechanism of the findings of the priority-setting process emerged mainly from the economic and ethics contributions. Even though stakeholders were keen on packaging and translating research evidence, it was clear that this was mainly for the purposes of informing priority-setting, rather than communicating priority-setting decisions. However, the need for the decisions of the priority-setting process to be communicated simply to all parties in the decision-making process and to the public emerged as important not only from the theory, but also from the empirical experience in other settings.
• The weighted list from users includes a specification for the priority-setting approach to be able to guide resource allocation decisions at all levels of decision-making, given that Uganda’s health system is decentralised, with some devolution of decision-making to lower levels of administration. In particular, decision-makers were keen for an approach that combines a bottom-up and a top-down flow of decisions.
• Last, the weighted list of key features makes explicit the need for consideration of evidence on effectiveness, the need for consideration of equity, and cost-effectiveness. The current study’s checklist was developed from all four rationales, and combines all three features in the consideration of benefit and efficiency.
Opportunity costs cannot be considered without recourse to the evidence of effectiveness of the health programmes. In addition, the concept of benefit makes room for the consideration of equity, in as much as equity is included in the definition of benefit, whether through the use of equity weights or some other approach. It is important to note that DALY-based CUA is particularly useful for evaluating benefit in this context. The DALY, as has been shown, has important implications for the consideration of equity because it can be used to measure both need and capacity to benefit (when combined with intervention effectiveness and reach).

8.4. Comparing this Checklist with Other Checklists in the Literature

A review of the other checklists was undertaken in Section 3.8. This review indicated that no checklist had been developed for the context of priority-setting for HIV/AIDS or for LICs. In addition, while many checklists are comprehensive with regard to many of the key issues discussed in Chapter 3, no one checklist covered all the important issues raised by this checklist. In addition, only the checklist by Sibbald et al was developed with the specific input of the views of local stakeholders.

The checklist in this thesis attempts to address all these gaps. As has been shown, this checklist was developed with the perspective of LICs and the resource challenges and other challenges that were noted to be specific to this decision context—particularly to the mechanism of engaging the ADPs in a way that results in harmonised priorities. In addition, the views of decision-makers in this context were used to inform the development of this checklist, as shown above. This is similar to the process that was used by Sibbald et al. (2009) when developing their checklist. However, in this thesis, the views of stakeholders were weighted to attach a relative importance to the criteria that they proposed. The relative importance of these criteria, in addition to consideration of the other rationales, was the basis of the criteria included in this checklist.
The checklist developed here is more comprehensive than the other checklists. This is partly because all the other checklists highlighted important issues that were included in this checklist. While some checklists did not pick up some important issues—such as the capacity to implement the priority-setting approach—others did. Thus, this checklist was able to glean relevant elements (informed by the literature review in Part B and the users’ rationale) and include them in a more comprehensive manner.

In many respects, the checklist is similar to some of the other checklists, including the checklist by Segal et al. (2001), Carter et al. (Carter 2001) and Peacock et al. (2010b). This was because the contribution of economic theory informed these checklists and the checklist in this thesis. The checklist developed by Carter et al. was based on the framework proposed by Gold et al. (Gold et al. 1996). As discussed in Chapter 6, the rationales include an assessment of the contribution of economic theory, ethics, the empirical experience and the users’ perspective. The use of this scientific approach resulted in this comprehensive checklist; thus, the similarities in the checklist are unsurprising, given the similar methodological approach.

Last, it is important to note that this checklist does not assess the influence of the priority-setting approach on priority-setting decisions. In this regard, it is dissimilar to the checklists by Sabik and Lie (2008b) and Sibbald et al. (2009). It is a process-oriented checklist that is meant to inform priority-setting.
Chapter 9: Description of the Priority-Setting Model

9.1. Introduction

The recognition of the need for priority-setting has resulted in numerous approaches for priority-setting. These approaches range in complexity from simple approaches to multidisciplinary approaches that differ in their ability to address the competing agendas of decision-makers, their relative focus on technical principles versus due process, their applicability across decision-making levels and the health sector, and their inclusiveness. The main thrust of each priority-setting approach encountered in the literature and in practice is influenced greatly by the disciplinary underpinnings of the approach. The major disciplinary influences include the disciplines of epidemiology, economics and the decision-making school.

This chapter discusses the approaches that have been developed and used for priority-setting in relation to the checklist developed in this study. The approaches addressed in this chapter will be divided into economic approaches and non-economic approaches that have:

- been used for priority-setting in LICs
- recently been developed and used in developed countries
- The ability to address key concerns that have arisen in the literature and empirical experience, thereby meriting their mention.

It should be noted that the approaches discussed here are those that aim to inform what set or mix of services should be adopted, rather than approaches that are aimed at determining the spatial allocation of resources—that is, resources distributed to different geographical areas or between hospitals. Examples of the latter approaches include the RAF that are used in the UK (Sheldon & Carr-Hill 1992; Sheldon, Smith & Bevan 1993); Sweden (Andersson, Varde & Diderichsen 2000; Asthana et al. 2004; Diderichsen, Varde & Whitehead 1997); and many SSA countries, such as Uganda (Kapiriri, Norheim & Martin 2007), Ghana (Asante & Zwi 2009; Asante, Zwi & Ho 2006), South Africa (McIntyre et
al. 2008; McIntyre, Muirhead & Gilson 2002), Zambia (Bossert, Chitah & Bowser 2003) and Uganda (Orem & Zikusooka 2010) to determine the amount of resources availed for different regions, districts or health facilities. They also include historic funding models that essentially allocate resources according to the previous year’s funding, with a nominated adjustment, such as a change in the population base\(^ {26}\) (Kapiriri, Norheim & Martin 2007).

9.2. Non-economic Approaches to Priority-Setting

9.2.1. Epidemiological Approaches

Epidemiological approaches to priority-setting are based on the premise of ‘need’ as the rationale for distribution of services. The aim is to provide equal access or equal opportunities of access to healthcare services for those with equal need. However, the main issue is that it is very difficult to measure ‘need’. Two broad approaches of measuring ‘need’ that tend to inform priority-setting exist. The first consists of population-based proxies, such as standardised mortality rate and deprivation indices that aim to measure ‘need’ for entire populations (Coast, Donovan & Frankel 1996). These have traditionally been used in approaches such as the aforementioned RAF. The second consists of approaches that measure ‘need’ using descriptive data for different illnesses. These include the prevalence or incidence of disease, costs of disease or the BOD, as indicated by measures such as the DALY, use of health services and so forth. The use of these measures is discussed in more detail below.

9.2.1.1. Needs Assessments

The traditional approach to needs assessments consists of measuring the amount of ill health in a community or populace, and forming rankings of this by disease. Once this is completed, priorities for health improvement are established by allocating funds to the

\(^ {26}\) See (Segal & Chen 2001), (Carter 2001; Carter et al. 2008a) for an extensive discussion of these approaches.
diseases that contribute the greatest amount of ill health. Any of the measures above may be used to measure this ill health.

The use of needs assessments for priority-setting or planning became *de rigueur* in the 1990s in the UK following the recommendation by the Acheson Report that planners be responsible for assessing the needs of their local populaces (Acheson 1998). The adoption of these approaches has become less common, chiefly because of the recognition that they do not provide guidance on how funds should be allocated across diseases (Carter 2001; Segal & Chen 2001). Confusion arises regarding whether allocation should be solely for the largest causes of morbidity, and, if so, how much should be allocated and how to determine what should be allocated. In addition, focusing on need alone is inappropriate—a red herring. It has been argued that the focus should be on the ‘change in need’. The lack of regard to costs—in particular opportunity costs and considerations for the margin—is a key limitation of this approach (Cohen 1994; Donaldson & Mooney 1991; Mitton & Donaldson 2004).

### 9.2.1.2. BOD

The first BOD study was conducted at a global level with the aim of developing summary measures of population health that could be used for planning and monitoring health. The measure developed in this study was the DALY—discussed in Chapters 3 and 5. Since then, BOD disease studies have been conducted in LICS such as Uganda, Kenya, Zambia and Indonesia (Bobadilla & Cowley 1995d) and in developed countries such as Australia (Mathers et al. 2000; Mathers et al. 2001) and others (Phua et al. 2009).

In the settings where they have been conducted, BOD disease studies have been used to inform priority-setting. However, they have not been used in isolation. They have been supplemented more commonly with evidence of cost-effectiveness. In this regard, they have been used to inform the cost-effectiveness analyses.
Table 9.1: Assessment of Epidemiologic Approaches

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
<th>The approaches do not specify the need for this; however, in practice, they involve consultation with decision-makers to determine the objectives of the research process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</td>
<td>The concept of benefit defined in this approach is based on the notion of need and thus is mainly about the health gain to be received or the health problem to be averted. It is possible to incorporate other issues of importance, such as the weights included in the original DALYs that have equity implications.</td>
</tr>
<tr>
<td>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</td>
<td>The approaches do not inherently provide for marginal analysis or the assessment of the opportunity costs of interventions. In some cases, they have been used within a broader priority-setting exercise that involves marginal analysis.</td>
</tr>
<tr>
<td>Criterion 4: Does the approach specify the decision rules to determine the worth of the interventions? (T, P)</td>
<td>The decision rule is based on reduction in the BOD.</td>
</tr>
<tr>
<td>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</td>
<td>There are no clear mechanisms for data tractability in this approach.</td>
</tr>
<tr>
<td>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</td>
<td>Most needs assessments are conducted based on secondary evidence, while BOD studies are usually based on technical analyses. There is no clear specification for how scientific rigour is achieved in these analyses. In the recent past, one of the major criticisms levelled against BOD studies is the poor quality of data on which they are based.</td>
</tr>
<tr>
<td>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</td>
<td>No mechanism for consultation with stakeholders is specified in this approach, although it is possible to include them in a process that does this.</td>
</tr>
<tr>
<td>Criterion 8: Does the approach provide for operational efficiency? (P, U)</td>
<td>The assessment of BOD is not likely to be affordable in the short term in this context. It is likely that human resource training operational costs (time and money) will be reduced in the long term.</td>
</tr>
<tr>
<td>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</td>
<td>There is no mechanism of judgement specified in this approach.</td>
</tr>
<tr>
<td>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</td>
<td>There is no specification for the reporting of the priority-setting recommendations, or how they align with the objectives of the priority-setting process.</td>
</tr>
<tr>
<td>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</td>
<td>There is no specification for leadership of the priority-setting process in the approach.</td>
</tr>
</tbody>
</table>

**Conclusion:** It is clear from this assessment that purely epidemiological approaches do not meet many of the specifications for priority-setting for HIV/AIDS in Uganda.
9.2.2. Decision-Making Science

9.2.2.1. MCDA

The MCDA approach has been used to inform priority-setting in low and middle income countries such as Ghana, Nepal, Thailand, China and Brazil (Baltussen et al. 2006a; Baltussen et al. 2006b; Baltussen et al. 2007; Baltussen et al. 2010), where it has been used to establish the relative importance of criteria for priority-setting and to determine priorities for health. Baltussen et al. (2006) describe the main features of the MCDA approach. The first steps consist of determining the criteria that will be used for the priority-setting process, such as severity of disease, equity, cost, cost-effectiveness and so forth. This is done through surveys conducted among policymakers. The second step consists of ranking the criteria to determine the relative importance of the criteria. Most MCDA studies have used DCE to elicit the weights of the criteria; however, it has been noted that other methods can be used to quantitatively rank the criteria. The need for quantitative ranking, as opposed to qualitative rankings, is because qualitative rankings are often subject to distortions.

Once the relative importance of the criteria is obtained, interventions are ranked in a performance matrix, with the interventions in one column and the criteria in other columns. A linear summation model is then used to aggregate the product of the scores of the interventions and the weights for each criterion in order to determine the overall ranking of each intervention relative to the others. Once a league table of the interventions is obtained, the decision-maker can select the highest ranking interventions.
Table 9.2: Assessment of MCDA

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is potential to pose a well-defined research question that meets the objectives of the decision-maker.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The concept of benefit is defined in this method based on values such as equity that are considered in the performance matrix.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is consideration of efficiency based on cost-effectiveness derived from literature reviews. There is no marginal analysis completed to determine the scope for different population groups, different implementation modalities and scope/scale. Thus, while cost-effectiveness is included, it does not fully meet the purpose of achieving a targeted approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules to determine the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The decision rule is specified using a linear summation model in which the highest scoring interventions are selected.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The data are mainly derived from existing databases, such as the WHO database, on cost-effectiveness. In this regard, it reduces the data needs. However, this comes at the cost of context-specific efficiency estimates that would take into account implementing modality and specific sub-populations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most needs assessments are conducted based on secondary evidence, while BOD studies are usually based on technical analyses. There is no clear specification for how scientific rigour is achieved in these analyses. In the recent past, one of the major criticisms been levelled against BOD studies is the poor quality of data on which they are based.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach provides a mechanism for consulting stakeholders and eliciting the values that are important in the decision context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 8: Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The process is resource intensive. The use of DCE for eliciting the criteria poses huge resource requirements in terms of time. In addition, the human and financial resources required are high.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgement is exercised through the use of the performance matrix and through consultations with stakeholders.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mechanism for reporting the findings is specified in the approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specification for the governance of the priority-setting process exists in this approach.</td>
</tr>
</tbody>
</table>

**Conclusion:** MCDA provides some good features, such as the regard for consultation with stakeholders, the role of judgement and the broad definition of the concept of benefit. However, it is limited with regard to the role of targeting the MARPs and operational efficiency.
The EVIDEM framework has been used in Canada and the UK to aid decision-making for Turner’s syndrome and Dementia, respectively (Battista; Goetghebeur et al. 2008a; Goetghebeur et al. 2008b; Goetghebeur et al. 2012; Iliffe et al. 2011; Iliffe et al. 2008; Tony et al. 2011). The approach uses an MCDA matrix of quantifiable and qualitative components to inform decision-making.

It consists of seven modules that guide the decision-making process for a given healthcare intervention, as follows:

- **Module 1** consists of assembling a multi-skilled and collaborative team that includes experts, decision-makers, data assessors, data producers and so forth.
- **Module 2** consists of making all the evidence pertinent to successful priority-setting available to the team by providing full access to full-text journal articles.
- **Module 3** consists of synthesising the evidence on the effectiveness or efficacy of the intervention.
- **Module 4** is primarily concerned with assessing the quality of the evidence provided. This is based on general guidelines on the assessment of quality of evidence, as developed by systems such as GRADE, Cochrane Reviews and Centre for Evidence Based Research. The framework uses three definitions for quality assessment: Q1) Adherence to the requirements established by the decision-making body to which the evidence is submitted; Q2) Completeness of reporting of the evidence; and Q3) Relevance and validity of the evidence to the decision-making body.
- **Module 5** is the centrepiece of the framework. It uses the MCDA approach to score the healthcare intervention based on key concepts of concern to the decision-makers. These concepts represent the intrinsic value that the health intervention should have, such as the ability to improve efficacy or the budgetary effect of the framework. Within the MCDA matrix, each component is accorded a weight based on the views of the stakeholders. The healthcare interventions are then scored against each component cluster, and the intrinsic value of the healthcare
intervention is assessed using a linear function using a weighted sum of the scores
of the intervention.

- **Module 6** consists of the evaluation of the extrinsic value of the healthcare
  intervention. The extrinsic value of the healthcare intervention may consist of
  locally defined factors, such as the historical context of the setting, equity, cultural
  factors and so forth.

- **Module 7** deals with communicating the results of the decision-making process in
  a manner that engenders transparency and accountability.

EVIDEM emphasises the importance of all types of which in this approach is broken down
into three types:

- description of the disease, treatment patterns and the influence of new therapy
- information on the new intervention, such as efficacy and safety
- Economic data, such as price and price justification, economic evaluation of the
  intervention and the budgetary effect.

In addition, it does not fulfil the requirement for operational efficiency. The resource
requirements to conduct the assessments in all seven modules for each model are likely to
be high, given the level of time, money and human resource capacity needed.

The approach also uses predefined decision-making criteria that may not necessarily
reflect local decision contexts (Youngkong, Tromp & Chitama 2011). Further, the reliance
on teams of experts to assess the performance of the healthcare interventions is likely to
result in ranking inconsistency because different panels have different considerations
across different interventions, and would not necessarily score the same interventions in
a similar manner.
Table 9.3: Assessment of the EVIDEM Approach

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is potential to pose a well-defined research question that meets the objectives of the decision-maker.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The concept of benefit is defined in this method.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It does not provide for marginal analysis, which, as discussed above, is essential for priority-setting in this decision context. It should be noted that EVIDEM is more suited to priority-setting for single interventions, rather than across a range of interventions—let alone a disease spectrum or the entire health sector. The set-up described above is limited to a single intervention and thus would require development for different interventions and diseases. This limits its application for collective priority-setting for HIV/AIDS.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The decision rule is specified using a linear summation model in which the highest scoring interventions are selected.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The electronic links to evidence are an important feature of this approach. They provide a systematised way of considering the information needs and collating them. In addition, tractability is enabled by the consideration of only one intervention.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no specification for scientific rigour in this approach.</td>
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</table>

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<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach provides a mechanism for consulting stakeholders and eliciting the values that are important in the decision context.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 8: Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is unlikely that this approach will be affordable. The conduct of DCE for each intervention is likely to be resource intensive. It is also likely that conduct of similar processes for each intervention considered in collective priority-setting will make the process more costly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judgement is exercised through using the performance matrix and consultations with stakeholders.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mechanism for reporting the findings is specified in the approach.</td>
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<thead>
<tr>
<th>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specification for the governance of the priority-setting process exists in this approach.</td>
</tr>
</tbody>
</table>

**Conclusion:** It is clear from this assessment that purely MCDA does not meet many of the specifications for priority-setting for HIV/AIDS in Uganda. The major failing of this approach is the fact that it is suited to single intervention analysis, rather than collective priority-setting.
9.3. Economic Approaches to Priority-Setting

9.3.1. Exclusively Economic

9.3.1.1. Cost-of-illness Studies

These are studies or approaches that seek to prioritise based on the effect of the disease, as measured in terms of its cost. The costs that are traditionally estimated are the *direct costs* of the illness (including the costs of treating the illness), *indirect costs* (including the costs of lost productivity resulting from premature mortality or illness) and *intangible costs* (which result from loss in wellbeing or quality of life). The interest in cost-of-illness studies started with the seminal work conducted by Rice (1967) to determine the cost of illness in the US. Since then, the practice has increased despite the many criticisms levelled at the approach.

The justification for cost-of-illness studies in priority-setting is that they not only provide relevant information of the BOD in terms of the costs, but they also distinguish different components of cost and the size of the contribution of each sector in society (Hodgson 1989; Hodgson & Meiners 1982). However, they have been challenged on the basis that, since they provide estimates of the total costs of disease, they cannot provide useful information for changes in health service mix because to do so would require knowledge of changes of costs at the margin, which they do not provide (Byford, Torgerson & Raftery 2000; Shiell, Gerard & Donaldson 1987).

In addition, such studies do not consider the effectiveness of the interventions used to address the illnesses, nor do they address uncertainty regarding their effectiveness. The charge that they provide estimates of the benefit of preventing an illness has been countered by the fact that this assumes that prevention will totally eradicate the disease, which is very rare and sometimes the costs of prevention may be greater than the costs of the illness. Last, the approach has been criticised for the potential to perpetuate existing inefficiencies, since prioritising based on the most costly intervention may lead to allocating funds to diseases that are costly because a lot of funds were originally allocated
to them. If the basis for the original funding was irrational, it is likely that existing inefficiencies would be perpetuated (Drummond 1992).

**Table 9.4: Assessment of Cost-of-Illness Approach to Priority-Setting**

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is possible to define a research question, although it is unlikely that it will meet all the objectives of the decision-maker.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The concept of benefit is not clear, nor is it comprehensive, because it does not include the components of social welfare that are important to decision-makers, such as improvement in health and quality of life.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no assessment of the benefit foregone, nor is there marginal analysis, which is essential in this context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no decision rules for determining the worth of the interventions.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
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</thead>
<tbody>
<tr>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no mechanism for consultation with stakeholders to elicit the values that stakeholders consider important for priority-setting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 8: Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is likely that it might be resource intensive, although there is scope for institutionalisation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
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<tbody>
<tr>
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<tr>
<th>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</th>
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<tr>
<td>No mechanism for reporting the findings is specified in the approach.</td>
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<tr>
<th>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specification for the governance of the priority-setting process is made in this approach.</td>
</tr>
</tbody>
</table>

**Conclusion:** It is clear from this assessment that cost-of-illness approaches do not meet many of the specifications for priority-setting for HIV/AIDS in Uganda.

9.3.1.2. **QALY League Table Approach**

QALY league tables have been suggested by research (Drummond, Torrance & Mason 1993; Gerard & Mooney 1993; Mason, Drummond & Torrance 1993; Pinkerton et al. 2001) and used to set priorities for health in places such as Oregon in the US (Hadorn
As it has been used in the past, this approach consists of ranking the results of single cost-effectiveness analyses in descending order of cost-effectiveness. Most league tables have been based on cost/QALY analyses, in which the QALY is a measure of the benefit of the programmes being analysed, in terms of their influence on quality of life and prolongation of life. These measures are similar to the DALY that was used in the BOD study.

Once interventions are ranked in the table, the decision-maker can allocate the money within a budget, starting with the most cost-effective and continuing down the table until the money is exhausted. However, in most cases, the cost-effectiveness results obtained in the literature may be acquired from a setting that is dissimilar to the one in which they are intended to be used. In addition, the costs may differ and the studies used may be old and not necessarily reflect the current costs and technologies available.

One major advantage of this method is that it is affordable in terms of time and money because the studies are obtained from the literature, and there is no need to pay for a researcher. However, the disadvantages are that it does not allow for consultation among multiple stakeholders, as in the HIV/AIDS policy setting, and other objectives of decision-makers—such as addressing inequalities and ensuring the acceptability of interventions—are not specified. It seems like an approach that would best be used in a much broader priority-setting process, such as those below.
## Table 9.5: Assessment of the QALY League Table Approach

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no explicit recognition of this in the approach, although the conduct of league tables in academic exercises and in reimbursement schemes in many countries will inevitably involve the definition of a research question.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The QALY league table by definition usually defines benefit in terms of the health gained/QALYs gained. In most cases, other issues of importance to decision-makers are not included in the definition of benefit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This approach uses average cost-effectiveness ratios. The conduct of most QALY league tables is through secondary literature reviews that may not include marginal analysis for sub-populations, or assessments of scaling up of interventions that are crucial for this decision context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The decision rule is the cost-effectiveness ratio, which, as discussed in Chapter 4, is only useful if there is a threshold value or a shadow price for the QALY.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most QALY league tables are developed based on literature reviews. Thus, data tractability depends on the level of access to the literature.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted? (T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QALY league tables are dependent on the level of scientific rigour in the studies that are included in the tables. Thus, the level of scientific rigour will vary with the table. In this regard, the approach is weak.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no mechanism for consultation with stakeholders to elicit their values, unless they are included in a broader priority-setting process that allows for this.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 8: Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given the fact that no technical analysis is conducted and the development of the tables is dependent on the literature review, it is likely that the approach will have few operational costs and require little time.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is little scope for judgement in this approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</th>
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<tr>
<td>No mechanism for reporting the findings is specified in the approach.</td>
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<th>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
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</thead>
<tbody>
<tr>
<td>No specification for the governance of the priority-setting process exists in this approach.</td>
</tr>
</tbody>
</table>

**Conclusion:** It is clear that QALY league tables are inherently limited in informing priority-setting. Despite the operational efficiency they afford, they have a limited concept of benefit and make no room for due process or judgement. There is also no recognition of the need for governance structures for priority-setting approaches.
WHO-CHOICE is a project that aims to improve policy formulation for developing countries. To this end, the project released guidelines for the conduct of CEA that have since been used by the project for priority-setting for countries in 14 regions in the world (Hutubessy, Chisholm & Edejer 2003). This approach is particularly important to consider since it is used to inform priority-setting, albeit at the global level, for developing countries.

In general, the approach emphasises a focus on determining the cost-effectiveness of interventions in a manner that will permit the attainment of allocative efficiency. This approach provides only for consideration of cost-effectiveness and does not provide for other objectives of importance to decision-makers, such as equity or sustainability. There is no concern for due process and no mention of how different stakeholders in the priority-setting process should be engaged.

<table>
<thead>
<tr>
<th>Table 9.6: Assessment of WHO-CHOICE</th>
</tr>
</thead>
</table>
| **Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)**  
It is possible to define a research question, although it is unlikely that it will meet all the objectives of the decision-maker. |
| **Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)**  
The evaluative space in this approach is restricted to health gain or disability averted. It does not include other issues of importance to decision-makers. |
| **Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)**  
The approach is premised on the assessment of cost-effectiveness based on the assessment of opportunity costs and marginal analysis. In addition, the explicit recognition of the need for assessing the options for change, including the ‘null scenario’, is a key strength of this approach. It is good for assessment of allocative efficiency because it not only assesses the efficiency of the proposed mix of services, but also the efficiency of the current mix. |
| **Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)**  
The decision rules in this approach are based on average cost-effectiveness ratios and—like QALY league tables—require a threshold ration and budget constraint against which the worth of the interventions can be judged. |
| **Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)**  
There is no mechanism for data tractability that is specified in the approach. |
| **Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?**  
The approach explicitly recognises the need for scientific rigour, including the conduct of uncertainty analyses. |
Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)

There is no mechanism for consultation with stakeholders to elicit values that stakeholders think are important for priority-setting, although the authors note that the approach should be used within a broader priority-setting process that includes consultation.

Criterion 8: Does the approach provide for operational efficiency? (P, U)

It is likely that it might be resource intensive, although there is scope for institutionalisation.

Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)

There is no mechanism for judgement inherent in the priority-setting process.

Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)

The approach includes a mechanism for reporting the technical results, with particular regard to the interpretation of the results, the generalizability of the results to the decision context, and the use of background papers that provide additional information that allows transparency.

Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)

No specification for the governance of the priority-setting process exists in this approach.

Conclusion: The WHO-CHOICE project provides for defining the research question, assessing efficiency, scientific rigour and reporting the results. This is unsurprising because the approach was developed as best practice for economic evaluation. However, the approach does not inherently provide for due process and judgement. In addition, the institutional or governance structures necessary for priority-setting are not included, which limits its applicability as a stand-alone approach.

9.3.2. Interdisciplinary Models with Strong Economic Component

9.3.2.1. Systems for HIV/AIDS Resource Allocation (S4HARA)

This model has been used for priority-setting at the clinic level in KwaDukuza in South Africa. The model is based in Microsoft Excel. It is a four-step programme for the allocation of priorities useful for priority-setting at the local government level, NGOs or public health institutions offering guidance on resource allocation in LICs.

The first step is a situation analysis that consists of collecting data related to the target population and the HIV/AIDS programmes offered. In this step, information on the population size, prevalence of HIV/AIDS, number of HIV/AIDS cases, resource planning horizon and budget are obtained. Data collected during this time could include CEA.

The second step identifies the factors that currently influence HIV/AIDS resource allocation decisions. In this step, factors that negatively or positively influence the implementation of programmes are identified within an influence diagram in order to
address them. The diagram consists of programme nodes and factor nodes. The factor nodes consist of negative and influencing factors, such as political power. The programme in Microsoft Excel comes equipped with predetermined factors, but provides an option for expanding them to include factors that are unique to the context.

The third step involves prioritising the HIV/AIDS programmes. This step consists of three components, including prioritising the programmes based on the information provided in the situation analysis. The highest priority is ranked one, the next is ranked two, and so forth. Once this has been done, an equity-based allocation described as one proportional to the maximum allocation for the programme. A solely equity-based allocation suffices only in the event that the decision-makers do not regard cost-effectiveness data as important. In the event that cost-effectiveness is important, cost-effectiveness analyses must be undertaken or cost-effectiveness ratios must be derived from the literature. Once the cost-effectiveness ratios have been obtained, rankings of the programmes are made based on these ratios, and selection of programmes is completed based on cost-effectiveness, until the money is exhausted.

The final step combines the output of the second and third steps to create a comprehensive picture that highlights the influencing factors that act as barriers or facilitators to the results suggested by the rational resource allocation approach. This final step assists in formulating actionable recommendations intended to improve HIV/AIDS resource allocation.
Table 9.7: Performance of S4HARA Approach Against the Checklist

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is likely that the conduct of the priority-setting process using this approach involves the development of a research question that addresses the objectives of decision-makers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a process to define the concept of benefit in this approach through clarifying decision-makers’ objectives with stakeholders to ensure they align with the concept of benefit. The explicit aim is to maximise the DALYs averted or health gain.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In this approach, CEA is included only if it is considered important during the decision-making process. In this case, there is scope for marginal analysis that could permit targeting of interventions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision rules for optimisation include the maximisation of DALYs averted, subject to a budget constraint in the event that cost-effectiveness is included.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mechanism for data tractability is specified in the approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no explicit specification for scientific rigour in this approach. Thus, this would vary with the conduct of the CEA.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach includes the option of consulting with stakeholders. The main point of consultation is to determine the influencing factors in the implementation of the programme; it is not used to elicit the criteria and values that should guide priority-setting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 8: Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being Microsoft Excel–based, it is user-friendly, easy to implement and thus very likely to be affordable. It is likely that if CEA were considered essential, it would be more costly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The role of judgement is clear in this approach as the results of the optimisation analysis are weighted against the equity values in the approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mechanism for reporting the findings is specified in the approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specification for the governance of the priority-setting process exists in this approach.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach has some strong points, including the specification of a consultation process for the elicitation of local values and the definition of benefit. The inclusion of equity in the concept of benefit is also an important contribution, as is the explicit recognition of the need for judgement. Last, there is scope for ease of implementation of the approach. However, the approach is weak with regard to the specification for leadership structures and the lack of specification for rigour.</td>
</tr>
</tbody>
</table>

9.3.2.2. **ACE Framework**

This framework was developed with the aim of determining the ideal approach to priority-setting for the health sector. The key task that the framework attempts to achieve is to...
locate the need for technical rigour and use of the best available evidence (on effectiveness and efficiency) within a priority-setting process marked by due process or a consultative process and consideration of broader policy objectives of importance to decision-makers that have traditionally been ignored by researchers. Briefly, the ACE approach employs technical approaches of CEA and epidemiology, calibrated with the best available evidence to determine the effectiveness and efficiency of interventions. These are conducted by a team of researchers that provide the information to a working group of stakeholders.

The early and ongoing involvement of a working group of stakeholders is a hallmark of the ACE and PBMA approaches to priority-setting. The stakeholders are involved right from the beginning in establishing the research question and objectives of the priority-setting process. Their involvement is essential in the selection of the disease/risk factor areas that will be involved in the priority-setting process; the selection of interventions that will be evaluated in the CEA (and the criteria by which they will be chosen); providing guidance on the best sources of evidence; and, most importantly, ensuring that the views of different stakeholders are recognised. Last, the working group applies a set of ‘second stage’ or implementation filters (explained below) to the interventions appraised in the technical analysis.

The key features of ACE are that:

- the rationale for selection of interventions is discussed and clearly specified by the researchers and stakeholders
- the evaluation methods are standardised, documented and open to scrutiny
- CUA (a form of CEA of interventions) is used to develop ICERs based on economic/epidemiologic models that use the best evidence available
- the ICERs, costs and benefits or health outcome measures are presented as a range around point estimates to reflect explicitly the uncertainty of costs, process and outcome values
- the setting, context and comparator are clearly specified and common to all the interventions under scrutiny
• country-specific data are used whenever possible for health system costs, demographic data and epidemiological disease parameters
• data needs are made tractable by using existing sources of evidence on costs and health outcomes to guide decision-making
• the ICERs are placed within a broader decision-making framework that includes ‘equity’, ‘feasibility of implementation’, ‘acceptability to stakeholders’, ‘strength of evidence’ and other study-specific considerations (so-called second-stage filters)
• Information is assembled by a multidisciplinary research team and prepared in briefing papers to a standardised format agreed by a working group of stakeholders who are involved throughout the study.

Table 9.8: Assessment of the ACE Approach

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach specifies the need for a well-posed and answerable research question developed in collaboration with a working group of stakeholders in the priority-setting process.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through consultations with TWGs, ACE is able to clarify the objectives of the priority-setting process with decision-makers, and align them with the concept of benefit specific to the priority-setting task.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal analysis is a central issue in the ACE approach. In addition, the approach consists of consideration of the opportunity costs of programmes, which makes it suitable, in this regard, for priority-setting for HIV/AIDS in Uganda.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The decision rules often employed in ACE are the standard ICER used in economic evaluation studies for ranking the priority-setting process. The approach uses the two-stage filter mechanism in which efficiency, severity of the problem, effectiveness, equity, cost, acceptability and likelihood of implementation are included.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data tractability in this framework has been achieved in the context where it has been used by using existing databases on health expenditure and the disease burden. The explicit data needed in this approach (given the concept of benefit) include data on the severity of the problem, resource use, effectiveness of the problem and broader notions of benefit, such as equity. The mechanism of data tractability in this approach may be specific to the contexts where such large datasets are available. It provides a useful way of structuring data needs and would work best in decision contexts where these data are readily available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is clear regard for scientific rigour in this approach through using an economic evaluation protocol that standardises the approach to identification, measurement and valuation of costs and benefits and the conduct of uncertainty analyses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
</table>

210
There is scope for stakeholder consultation within this approach to elicit the criteria and other views of relevant stakeholders. This is a strong point of the approach, as stakeholders are consulted right from the beginning of the task to the end of the priority-setting approach.

**Criterion 8: Does the approach provide for operational efficiency? (P, U)**

It is likely that the resource requirements with this approach will be high, especially with the human resource and financial requirements for conducting the cost-effectiveness analyses and engaging the stakeholders. In addition, the conduct of the cost-effectiveness analyses may result in a longer priority-setting time.

**Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)**

There is scope for the role of judgement in the priority-setting process. Most ACE studies have operationalised this through using second-stage filters.

**Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)**

The approach includes a mechanism for reporting the technical results, with particular regard to interpretation of the results to stakeholders in briefing papers, generalizability of the results to the decision context, and use of background papers that provide additional information that allows transparency. In addition, the limitations of the analysis and the strength of the evidence on which the recommendations are based are presented.

**Conclusion:** The ACE approach provides many of the desirable features in this checklist. However, even though it makes explicit the need for data tractability, the approach to achieving this may not be generalizable to LICs such as Uganda. However, it should be noted that HIV/AIDS is unique in this regard, given the inordinate attention to evidence generation in this context for HIV/AIDS. The other limitation is the level of operational efficiency that can be achieved by this framework.

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**9.3.2.3. PBMA**

This priority-setting framework has been used extensively in the UK, Canada and Australia (Mitton & Donaldson 2001). It is an economic framework specifically designed to help local decision-makers set health service priorities (Peacock et al. 2010a). The intent of PBMA is to assist local decision-makers in directing resources to maximise benefits from health services, considering both opportunity cost and resource shifts ‘at the margin’. PBMA applies these principles where resource scarcity actually bites—at the local level—as it is most often local managers and clinicians who have to bear the opportunity cost of reallocation decisions elsewhere in their budgets. Most importantly, PBMA explicitly recognises the need to balance pragmatic and ethical considerations with economic rationality when making resource allocation decisions.

The stages of conducting a PBMA include:
1. determining the aim and scope of the priority-setting process, such as whether PBMA will be used to examine changes in services within a given programme—for example, an ART treatment programme or between programmes, or prevention versus treatment versus OVC
2. compiling a ‘programme budget’ by identifying and quantifying the resources available
3. forming a ‘marginal analysis’ advisory panel consisting of eight to 30 people, comprised of key stakeholders (such as managers, physicians, nurses, financer personnel, consumers and community representatives) to advise the priority-setting process. These stakeholders identify the programmes for change and agree on the scope of the priority-setting process and the criteria that will be used to select the programmes for change
4. determining locally relevant decision-making criteria elicited from the panel—such as maximising benefits, improving access and equity, and reducing waiting times—with reference to national, regional and local objectives, and specified objectives of the health system and the community
5. Identifying options for (a) service growth; (b) resource release from gains in operational efficiencies; and (c) resource release from scaling back or ceasing some services. The programme budget—along with information on the decision-making objectives (such as equity, effectiveness and so forth), benefits of the service, changes in local healthcare needs and policy guidance—is used to highlight programmes for increased funding or decreased funding
6. evaluating investments and disinvestments
7. Re-examining and validating the evidence and judgements used in the process, and reallocating resources according to cost–benefit.
Table 9.9: Assessment of the PBMA Approach

<table>
<thead>
<tr>
<th>Criterion 1:</th>
<th>Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach specifies the need for a well-posed and answerable research question developed in collaboration with a working group of stakeholders in the priority-setting process.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 2:</th>
<th>Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Through consultations with TWGs, PBMA is able to clarify the objectives of the priority-setting process with decision-makers, and align them with the concept of benefit.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 3:</th>
<th>Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal analysis is a central issue in the PBMA approach. In addition, the approach consists of consideration of the opportunity costs of programmes, which makes it suitable, in this regard, for priority-setting for HIV/AIDS in Uganda.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 4:</th>
<th>Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The decision rules often employed in PBMA studies are the standard ICER used in economic evaluation studies for determining the worth of the intervention.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 5:</th>
<th>Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the past, the mechanism for data tractability has often relied on the opinions of working group members. However, more recent studies and guidelines exhibit a reliance on stronger sources of evidence. The reliance on independent researcher teams has often been used in recent endeavours to make the data tractable.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 6:</th>
<th>Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no specification for scientific rigour in this approach.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 7:</th>
<th>Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is scope for stakeholder consultation within this approach to elicit the criteria and other views of relevant stakeholders.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 8:</th>
<th>Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is likely that the resource requirements with this approach will be higher, especially with the human resource and financial requirements for conducting the cost-effectiveness analyses and engaging the stakeholders. In addition, the conduct of the cost-effectiveness analyses may result in longer priority-setting time.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 9:</th>
<th>Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is scope for the role of judgement in the priority-setting process. Most PBMA studies have operationalised this through using weights for different criteria. Others have used second-stage filters.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 10:</th>
<th>Does the approach provide for a mechanism of reporting? (T, P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No explicit requirement is made for reporting findings to decision-makers; however, the practice varies with the application of the approach.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criterion 11:</th>
<th>Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The approach explicitly recognises the importance of leadership and other institutional structures that are necessary to enforce the decisions and recommendations of the priority-setting process.</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion:** It is clear from this assessment that PBMA possesses inherently some of the features that are crucial for priority-setting. In particular, the regard for due process is an important feature. However, it is limited in regard to data tractability and scientific rigour, though it should be noted that these are likely to be due to the application of the process.
9.3.2.4.  **Health Sector-wide Disease-based Model (HSW-DBM)**

The HSW-DBM was developed in an attempt to develop the ideal approach to priority-setting (Segal & Chen 2001; Segal & Mortimer 2006). The HSW-DBM has since been used in setting priorities for non-insulin-dependent diabetes mellitus (Segal & Chen 2001) and osteoarthritis in Australia (Segal et al. 2004). The main aspiration of the model is to achieve allocative efficiency in the service mix for the health sector based on two important criteria or considerations: efficiency or maximisation of health and reduction of inequalities in health or equity.

The framework involves the staged comparison of health interventions to eventually cover the entire ‘health’ sector via a structured approach. The framework is conducted in the following steps:

1. developing the research question and determining the scope of the priority-setting exercise
2. selecting a health problem, such as HIV/AIDS or malaria, based on predetermined criteria, such as the size of the problem, the availability of interventions to address the problem and so forth
3. staging the research task in a way that makes the task tractable by evaluating the health problem in stages, such as primary prevention, early identification of people with disease, disease management, prevention of complications and treatment of end-stage disease/palliative care
4. all interventions addressing each stage are ranked based on their cost-effectiveness and the most marginal (most cost-effective and least cost-effective) interventions
5. these are compared with those selected to address other stages of the disease condition to allow comparison across disease stages
6. once this is done, steps two to five are replicated for another disease condition until the entire health sector is covered
7. Comparison of diseases is undertaken by comparing the most marginal programmes (best and worst) from each cell—possibly commencing with a particular stage—between cells along a row.
### Table 9.10: Assessment of the HSW-DBM

<table>
<thead>
<tr>
<th>Criterion 1: Does the approach present a well-defined and answerable research question? (T, P, U)</th>
</tr>
</thead>
</table>
The approach specifies the need for a well-posed and answerable research question developed in collaboration with a working group of stakeholders in the priority-setting process. |

<table>
<thead>
<tr>
<th>Criterion 2: Does the approach provide a way to define the evaluative space (benefit) and how it should be valued? (T, E, P)</th>
</tr>
</thead>
</table>
Through consultations with TWGs, HSW-DBM is able to clarify the objectives of the priority-setting process with decision-makers, and align them with the concept of benefit. |

<table>
<thead>
<tr>
<th>Criterion 3: Does the approach provide for the assessment of efficiency? (T, P, U)</th>
</tr>
</thead>
</table>
Marginal analysis is a central issue in this approach. In addition, the approach consists of considering the opportunity costs of programmes, which makes it suitable, in this regard, for priority-setting for HIV/AIDS in Uganda. |

<table>
<thead>
<tr>
<th>Criterion 4: Does the approach specify the decision rules for determining the worth of the interventions? (T, P)</th>
</tr>
</thead>
</table>
The decision rules often employed in HSW-DBM studies are the standard ICER used in economic evaluation studies to determine the worth of the intervention. |

<table>
<thead>
<tr>
<th>Criterion 5: Does the approach provide a mechanism for making the data needs tractable during the evaluation to ensure legitimacy of the decisions that arise from the technical analysis? (T, P)</th>
</tr>
</thead>
</table>
Data tractability is achieved by restricting the analyses to specific stages of the disease and across disease stages. In this manner, the number of cost-effectiveness analyses required is less than the analyses that would be required for the entire health sector. |

<table>
<thead>
<tr>
<th>Criterion 6: Is there a requirement for scientific rigour (based on established standards) in the way the technical analysis is conducted?</th>
</tr>
</thead>
</table>
There is no specification for scientific rigour in this approach and an explicit recognition of the need for uncertainty analyses through sensitivity analyses. |

<table>
<thead>
<tr>
<th>Criterion 7: Does the approach provide a mechanism for consultation with relevant stakeholders (including non-technical groups) that allows their values to be articulated and addressed? (T, P, E, U)</th>
</tr>
</thead>
</table>
No specific mechanism is provided for due process and to involve all necessary stakeholders, especially non-technical stakeholders. This is a particular weakness of the approach. |

<table>
<thead>
<tr>
<th>Criterion 8: Does the approach provide for operational efficiency? (P, U)</th>
</tr>
</thead>
</table>
It is likely that the resource requirements with this approach will be higher, especially with the human resource and financial requirements for conducting the cost-effectiveness analyses and engaging the stakeholders. In addition, the conduct of the cost-effectiveness analyses may result in longer priority-setting time. |

<table>
<thead>
<tr>
<th>Criterion 9: Does the approach provide for the need for judgement in the priority-setting process in which the information from the technical analyses above is weighed against the values that are relevant in the HIV/AIDS decision context in Uganda? (T, E, P, U)</th>
</tr>
</thead>
</table>
There is no recognition of the role of judgement in the priority-setting process. |

<table>
<thead>
<tr>
<th>Criterion 10: Does the approach provide for a mechanism of reporting? (T, P, U)</th>
</tr>
</thead>
</table>
There is no specification for how reporting the recommendations of the priority-setting process should be undertaken. |

<table>
<thead>
<tr>
<th>Criterion 11: Does the approach provide specification for leadership of the priority-setting approach with a view to effective implementation of decisions and recommendations? (P, U)</th>
</tr>
</thead>
</table>
No specification for the governance of the priority-setting process exists in this approach. |

**Conclusion:** It is clear from this assessment that HSW-DBM possesses inherently some of the features that are crucial for priority-setting. However, its main area of weakness is the lack of regard for due process and the poor operational efficiency.
9.4. Numerical Rating of the Frameworks by the Stakeholders

The above sections described a number of economic and non-economic approaches that have been developed and used in Low Income Countries and other settings over time. In addition the rating against the checklist developed in this study showed that generally approaches that were predominantly economic and that included elements of due-process were generally superior. However, given the nature of the rating (i.e. no values were attached to the assessments) it was difficult to determine which would be chosen.

This section presents the results of a scoring exercise that was conducted among participants in the priority-setting process for HIV/AIDS in Uganda. The methodology that was used in this exercise was described earlier in this thesis in Chapter 6, Table 9.11 presents the results for the average numerical values attached to the approaches for each criterion in the stakeholders list of desirable features presented in Appendix II.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>S4HARA</th>
<th>ACE</th>
<th>PBMA</th>
<th>QALY league Table</th>
<th>WHO-CHOICE</th>
<th>HSW-DBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity Consideration-need</td>
<td>5.4</td>
<td>6.6</td>
<td>6.2</td>
<td>2.8</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>Affordable priority-setting process</td>
<td>5.8</td>
<td>7.4</td>
<td>6.0</td>
<td>5.2</td>
<td>5.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Consultative Process</td>
<td>7.6</td>
<td>5.4</td>
<td>6.4</td>
<td>4.2</td>
<td>4.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Evidence of effectiveness</td>
<td>4.2</td>
<td>5.4</td>
<td>5.4</td>
<td>2.2</td>
<td>2.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Involve all levels of decision-making</td>
<td>6.2</td>
<td>7.2</td>
<td>7.2</td>
<td>3.4</td>
<td>3.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Good governance and leadership</td>
<td>3.8</td>
<td>5.2</td>
<td>5.6</td>
<td>2.2</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Judgment-mechanism of reconciliation</td>
<td>7.0</td>
<td>7.6</td>
<td>6.4</td>
<td>3.6</td>
<td>3.6</td>
<td>5.2</td>
</tr>
<tr>
<td>Cost-effectiveness of interventions</td>
<td>5.0</td>
<td>5.0</td>
<td>5.6</td>
<td>2.8</td>
<td>2.8</td>
<td>3.6</td>
</tr>
<tr>
<td>Internal and external transparency</td>
<td>5.8</td>
<td>5.2</td>
<td>5.4</td>
<td>2.4</td>
<td>2.8</td>
<td>4.8</td>
</tr>
</tbody>
</table>
The average scores in Table 9.11 above were then multiplied by the weights for each criterion as in the formula below. The figures in each column of Table 9.12 below are the results of multiplying each of the average scores with the weights of each criterion. The totals at the end of the columns are the aggregation of the weighted scores for each of the approaches.

**Table 9.12 : Weighted scores of the priority-setting approaches**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>S4HARA</th>
<th>ACE</th>
<th>PBMA</th>
<th>QALY league Table</th>
<th>WHO-CHOICE</th>
<th>HSW-DBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity Consideration-need</td>
<td>7.51</td>
<td>9.17</td>
<td>8.62</td>
<td>3.89</td>
<td>5.84</td>
<td>5.84</td>
</tr>
<tr>
<td>Affordable priority-setting process</td>
<td>7.66</td>
<td>9.77</td>
<td>7.92</td>
<td>6.86</td>
<td>6.60</td>
<td>6.34</td>
</tr>
<tr>
<td>Consultative Process</td>
<td>9.50</td>
<td>6.75</td>
<td>8.00</td>
<td>5.25</td>
<td>5.25</td>
<td>5.00</td>
</tr>
<tr>
<td>Evidence of effectiveness</td>
<td>5.25</td>
<td>6.75</td>
<td>6.75</td>
<td>2.75</td>
<td>3.50</td>
<td>2.75</td>
</tr>
<tr>
<td>Involve all levels of decision-making</td>
<td>7.19</td>
<td>8.35</td>
<td>8.35</td>
<td>3.94</td>
<td>4.18</td>
<td>5.57</td>
</tr>
<tr>
<td>Good governance and leadership</td>
<td>3.99</td>
<td>5.46</td>
<td>5.88</td>
<td>2.31</td>
<td>3.15</td>
<td>3.36</td>
</tr>
<tr>
<td>Judgment-mechanism of reconciliation</td>
<td>7.35</td>
<td>7.98</td>
<td>6.72</td>
<td>3.78</td>
<td>3.78</td>
<td>5.46</td>
</tr>
<tr>
<td>Cost-effectiveness of interventions</td>
<td>5.25</td>
<td>5.25</td>
<td>5.88</td>
<td>2.94</td>
<td>2.94</td>
<td>3.78</td>
</tr>
<tr>
<td>Internal and external transparency</td>
<td>5.68</td>
<td>5.10</td>
<td>5.29</td>
<td>2.35</td>
<td>2.74</td>
<td>4.70</td>
</tr>
<tr>
<td>Link to resource allocation decisions at all level</td>
<td>4.81</td>
<td>4.63</td>
<td>4.63</td>
<td>2.49</td>
<td>1.42</td>
<td>1.78</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>64.18</strong></td>
<td><strong>69.21</strong></td>
<td><strong>68.04</strong></td>
<td><strong>36.57</strong></td>
<td><strong>39.40</strong></td>
<td><strong>44.58</strong></td>
</tr>
</tbody>
</table>
As can be seen from Table 9.12, the highest scoring approaches are the ACE approach and PBMA. No framework attained the highest possible score of 100. This could be because of the likelihood that some frameworks that perform best on some criteria, like technical rigour, do so at the expense of other criteria such as affordability. When the threshold values developed by the stakeholders were used, it was confirmed that ACE and PBMA are the best performing approaches. Given that the ACE approach attained the highest score of the two approaches, the two checklists support the adoption of the multi-disciplinary approaches particularly, the ACE approach.

9.5. Conclusion

The above review has shown that epidemiological approaches and exclusively economic approaches to priority-setting are limited as ideal priority-setting approaches based on the checklist developed. This is chiefly due to the lack of regard for due process, the governance structures and—with the exception of WHO-CHOICE—the lack of regard for efficiency. Except for the needs assessments and QALY league tables, most approaches are likely to require considerable resources with regard to time, financial and human resources. In particular, approaches that include technical analyses geared towards targeting specific analyses and increasing scope are likely to be costly compared to those that do not include this or that rely on literature reviews.

The ideal priority-setting approach by definition of the criteria used in this study should have scored attained scores above the threshold on all the criteria or at the very least on the criteria that were valued the most (as judged by the weights for each criterion) by the local stakeholder than the others. Looking at the best performing approaches in this study shows that ACE scored above the threshold on all the most important criteria. Therefore in addition to the fact that it scored the best globally, the approach meets the criteria (as set by the local stakeholders) of what the ideal priority-setting approach for HIV prevention should address and fulfil.
Chapter 10: Pilot Study: Using the Assessing Cost-Effectiveness Framework for Priority-Setting of HIV Prevention Services in Uganda

10.1. Introduction

This chapter presents the results of the pilot study that was conducted in fulfilment of research objective four. It was the last of the four phases of the study conducted to answer the research question: to propose and evaluate a framework for priority-setting for HIV prevention in Uganda. The approach that performed the best and was used in the pilot study was the ACE framework. The purpose was to illustrate that the framework operates successfully in the HIV/AIDS decision context in Uganda and that, among other things, it is acceptable to policy stakeholders.

There exist a number of potential interventions in the HIV prevention arsenal. However, given that the aim of the pilot study was to illustrate the feasibility and effectiveness of the ACE framework in guiding priority-setting, a few illustrative interventions were selected from the interventions available.

It is important to reiterate what was meant by ‘prevention’ in this study. In this study, ‘prevention’ referred to those interventions that deter infection with HIV/AIDS. Thus, interventions that result in primary prevention of HIV/AIDS were considered. A brief description of the features of the ACE framework was given in Chapter 9.

10.2. The Study Frame

A number of texts provide guidance on how to conduct economic appraisal of interventions (Drummond, Sculpher & Torrance 2005; Gold et al. 1996). The guidance provided by Drummond, Sculpher and Torrance (2005) was used to guide the economic evaluation within the ACE framework.
10.2.1. The Research Question

The study aimed to determine the optimal mix among selected interventions for the primary prevention of HIV/AIDS in adults in Uganda. More specifically, it aimed to determine the comparative cost-effectiveness of interventions for the primary prevention of HIV/AIDS, weighed (albeit qualitatively) against other considerations of importance to decision-makers for HIV/AIDS in Uganda. The setting for this study was the Uganda HIV/AIDS policy context, at the national level, but drawing heavily from lower levels of decision-making by involving district planners in the working group.

10.2.2. The Study Comparators

The protocol in this study selected as a comparator the ‘null scenario’, which is the situation in which no interventions for the prevention of HIV/AIDS exist. Both the current practice and options for change were then modelled against this ‘null scenario’. The selection of the options for change was based on a systematic and rigorous process to ensure that a comprehensive list of possible interventions was included in a shortlist of ‘candidate interventions’ for working group members to consider. The published literature and locally relevant documents obtained from the MOH and UAC were used to search for evidence on available biomedical, behavioural and structural approaches to the prevention of HIV/AIDS.

The selection criteria that were used with approval by the working group included:

- the availability of evidence of efficacy/effectiveness to support the analysis
- indications that additional investment for an intervention would lead to a significant health gain or, conversely, that a decision to disinvest or decrease the resources allocated to the programme would have little or no effect on health outcomes
- the ability to specify the interventions in clear concrete terms in a manner that allows evaluation
relevance to the MARPs
considerations of ‘programme logic’ in the event that there were programmes for which there was insufficient or no available evidence of effectiveness, but which were deemed as integral to the success of the mix of interventions as a whole (such as a media campaign).

10.2.3. The Study Perspective

The study adopted a ‘health sector perspective’ (UAC) to find a balance between data tractability and relevance. This perspective includes the costs and benefits directly faced by the UAC qua health sector, as well as the costs and benefits faced by patients in accessing care. Productivity gains and losses were not included.

10.2.4. The Study Design

In this study, CEA and CUA (described in Chapter 4) were used to assess the efficiency of the interventions under comparison. The evaluation was employed within a larger framework provided by ACE, and the ICERs arising from these analyses were arranged in a league table and subjected to further assessment by the working group using the second-stage filters agreed upon.

10.2.5. Study Boundaries

Interventions are likely to have externalities or spill over effects, such as the herd immunity obtained from the immunisation of an individual. They might also have future unrelated healthcare costs and consequences, such as the costs and consequences of treating the diabetes that an individual who did not get HIV/AIDS as a result of the prevention of HIV/AIDS infection might accrue. Production gains and losses in the general economy may also result from interventions, either from reducing disease duration or from the interventions themselves. There is a need to achieve a balance in the feasibility of implementation of the evaluation task with the plethora of possible effects that may
result from the implementation of an intervention. Therefore, there is a need to place boundaries on the study.

In this study, aversion of HIV/AIDS infection was considered for the target population. The target population in this study were those adults aged 15 to 49 who were at risk of HIV/AIDS infection. No production gains or losses were considered in these analyses, despite the fact that HIV/AIDS has a significant effect on the productivity of individuals. This was because of the chosen perspective of analysis in this study. In addition, unrelated future health costs were not considered in the study. Other factors of importance to decision-makers, such as equity, were included in the second-stage filter criteria to broaden the concept of benefit.

### 10.2.6. The Time Horizon

Careful consideration of the time horizon assumed in an evaluation is essential because of the need to capture all relevant effects and costs of the intervention. The assumptions in this study were that the interventions implemented would be rolled out at different rates over the five-year span of the programme, and that population changes over time were at the rate of 3.5% per year (Uganda Bureau of Statistics 2007). The time horizon of follow-up of effects of the intervention was 15 years (2011 to 2025). The coverage rates were developed in tandem with policy documents and consensus with stakeholders. It was assumed that the age distribution would not alter much during the five years that the programme would be rolled out. As a result, some people entered the adult pool eligible, while some left the pool (> 49 years).

### 10.3. Methods of the CUA and CEA

This section addresses the manner in which the CUA/CEA was conducted with regard to identifying, measuring and valuing the costs and benefits, as well as generating the ICERs and reporting the results.
10.3.1. Modelling

The interventions were assessed using the GOALS model, which uses Spectrum software to determine the resource needs, influence and cost-effectiveness of interventions for the prevention of HIV/AIDS. The GOALS model is a deterministic model that has been used at global and national level (including Uganda) to determine the effect of HIV prevention interventions on an epidemic. The model includes pre-loaded data for different countries, including Uganda. It has been calibrated and validated for this setting (Forsythe, Stover & Bollinger 2009). It contains a transmission model that can be used to determine the number of HIV/AIDS infections over time resulting from sexual behaviour (of different risk groups) and injection drug users. It can also be used to estimate the costs and effects of different coverage rates of interventions.

The model considers the behavioural, biological and epidemiological factors that influence the transmission of HIV/AIDS. It considers the demographic profile of the country, as well as behavioural factors prevalent in the country. The model includes four heterosexual risk groups that are defined as follows:

- not sexually active: people who have not had sex in their entire life
- low-risk heterosexual: monogamous couples who have only one sexual partner
- medium-risk heterosexual: men and women with more than one sexual partner
- High-risk heterosexual: men and women who engage in transactional sex.

Other risk groups include:

- MSM
- Intravenous drug users.

10.3.1.1. Demographic Processes of the Model

People enter the GOALS model when they are 15 years old and exit when they are 50. This aligned well with the study population. In addition, ageing people are assumed to have a similar risk profile to the rest of the adults in the model. Last, the model provides for death conditions unrelated to HIV/AIDS. This is determined from DemProj—a module that exists within the Spectrum software of which GOALS is a part. The inputs for the
demographic processes that were used were the default values in GOALS specific to Uganda.

10.3.1.2. Transmission of HIV/AIDS

In the model, the transmission of HIV/AIDS is through heterosexual and homosexual transmission and intravenous drug use. The sexual transmission of HIV/AIDS is dependent on the characteristics of the partners and whether or not prevention methods were used that modify behaviour or sexual transmission. Sexual transmission in the model can be altered by behavioural and biomedical interventions. Figure 10.1 below illustrates these modifying factors. It is modelled using the following formula:

\[
1 - \left[ P_{s,k,t} \times (1 - r \times R_{t} \times MC_{k,t} \times C_{k,t} \times V_{k,t} \times S_{k,t} \times Pr_{k,t}) \right]^2 + (1 - P_{s,k,t})^2
\]

**Equation 1: Probability of Sexual Transmission of HIV/AIDS**

Source: GOALs manual (2011)

Where:

- \( P_{s,k,t} \) = HIV/AIDS prevalence in the partner population of risk group \( k \) at time \( t \)
- \( r \) = base probability of HIV/AIDS transmission per act
- \( R_{t} \) = multiplier for the effect of stage of infection
- \( C_{k,t} \) = multiplier for the effect of condom use
- \( MC_{k,t} \) = multiplier for the effect of male circumcision
- \( S_{k,t} \) = multiplier for the effect of sexually transmitted infections
- \( Pr_{k,t} \) = multiplier for the effect of PrEP
- \( V_{k,t} \) = multiplier for the effect of HIV/AIDS vaccines
- \( a \) = number of acts per partner per year
- \( n \) = number of partners per year
The model is fitted with an impact matrix of interventions that influence sexual behaviour, such as mass media and provision of condoms. The evidence for the efficacy of the interventions in the impact matrix has been published by (Bollinger, Cooper-Arnold & Stover 2004; Bollinger 2008). The evidence for the biomedical interventions is included in Table 12.3.

The interventions that were chosen for analysis were based on whether they were modelled in GOALS and on the criteria discussed in Section 10.2.2. The interventions that were selected with the help of the technical working group were:
mass media interventions—particularly television and radio programmes—used to raise awareness of HIV/AIDS and its transmission, as well as awareness regarding HIV/AIDS programmes

- provision of condoms by the government
- voluntary counselling and testing for HIV/AIDS, particularly client-initiated counselling and testing
- Peer counselling programmes for MARPs. The MARPS included in this analysis were CSWs and MSM due to restrictions in the risk groups available in the model
- blood transfusion services for screening for HIV/AIDS and other infectious agents
- safe male circumcision of adult males
- Treatment for the prevention of HIV/AIDS. In this study, eligibility for treatment using ART was done at CD4 cell count of 500 cells/μl.

In addition, the coverage rates (current estimates and targeted/ideal) for the selected interventions were obtained from key policy documents, as shown in Table 12.1 below:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Target coverage (%)</th>
<th>Current coverage (%)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media</td>
<td>80*</td>
<td>30</td>
</tr>
<tr>
<td>Condom provision</td>
<td>80¶</td>
<td>16</td>
</tr>
<tr>
<td>Peer counselling for MARPs</td>
<td>80*</td>
<td>10</td>
</tr>
<tr>
<td>Voluntary counselling and testing</td>
<td>80¶</td>
<td>30</td>
</tr>
<tr>
<td>Treatment as prevention</td>
<td>80¶</td>
<td>32</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>100¶</td>
<td>100</td>
</tr>
<tr>
<td>Safe male circumcision</td>
<td>80¶</td>
<td>26</td>
</tr>
</tbody>
</table>

* Coverage rates were assumed
** UNAIDS country progress reports (UAC 2010; Uganda AIDS Commission 2012a; UNAIDS 2008)


The input parameters for the HIV/AIDS model included the behavioural parameters that affect sexual transmission of HIV/AIDS. These were obtained from the published literature, and are shown in Table 10.2. In addition, biological parameters that affect transmission of HIV/AIDS were also included in the model, and are shown Table 10.3. The unit costs that were included in the model are shown in Table 10.4.
### Table 10.2: Behavioural Parameters used in the GOALS Model

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Input</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heterosexual men</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not sexually active*</td>
<td>Percentage in risk group</td>
<td>23.80</td>
</tr>
<tr>
<td>Low-risk sexually active**</td>
<td>Percentage</td>
<td>45.92</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Number of coital acts per partner per year</td>
<td>50</td>
</tr>
<tr>
<td>Medium risk***</td>
<td>Percentage</td>
<td>27.80</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Number of coital acts per partner per year</td>
<td>60</td>
</tr>
<tr>
<td>High risk****</td>
<td>Percentage</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>6</td>
</tr>
<tr>
<td><strong>Heterosexual women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not sexually active*</td>
<td>Percentage</td>
<td>12.90</td>
</tr>
<tr>
<td>Low risk**</td>
<td>Percentage</td>
<td>83.70</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Number of coital acts per partner per year</td>
<td>50</td>
</tr>
<tr>
<td>Medium risk***</td>
<td>Percentage</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Number of coital acts per partner per year</td>
<td>60</td>
</tr>
<tr>
<td>High risk****</td>
<td>Percentage</td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Number of coital acts per partner per year</td>
<td>6.0</td>
</tr>
<tr>
<td><strong>MSM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Number of partners per year</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Number of coital acts per partner per year</td>
<td>25</td>
</tr>
</tbody>
</table>
### Table 10.3: Inputs for Key Biological and Epidemiological Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission of HIV per act (female to male)</td>
<td>0.0011</td>
<td>(Baggaley RF &amp; Fraser C 2010)</td>
</tr>
<tr>
<td>Multiplier on transmission per act for male to female</td>
<td>1.0</td>
<td>2.2–11</td>
</tr>
<tr>
<td>- presence of STI</td>
<td>8</td>
<td>5.1–8.2</td>
</tr>
<tr>
<td>- MSM contacts</td>
<td>2.6</td>
<td>(Galvin &amp; Cohen 2004)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Powers et al. 2008)</td>
</tr>
<tr>
<td>Relative infectiousness by stage of infection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- primary infection</td>
<td>9–40</td>
<td>9.17 (4.47–18.81)</td>
</tr>
<tr>
<td>- asymptomatic</td>
<td>1</td>
<td>Reference stage</td>
</tr>
<tr>
<td>- symptomatic</td>
<td>7</td>
<td>7.27 (4.45–11.88)</td>
</tr>
<tr>
<td>- on ART</td>
<td>0.04–0.08</td>
<td>(Boily et al. 2009)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Pinkerton 2008)</td>
</tr>
<tr>
<td>Size of initial pulse of infection</td>
<td>0.0014</td>
<td></td>
</tr>
<tr>
<td>Annual declines in CD4 count among HIV adults*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fixed effects</td>
<td>61 (46–81)</td>
<td>(Wolbers M et al. 2010)</td>
</tr>
<tr>
<td>- By patient</td>
<td>74 (31–145)</td>
<td></td>
</tr>
<tr>
<td>- Last 2 tests</td>
<td>114 (32–229)</td>
<td></td>
</tr>
<tr>
<td>- 64 (8–136)</td>
<td></td>
<td>(Mellors JW et al. 2007)</td>
</tr>
<tr>
<td>- 50 (46–55)</td>
<td></td>
<td>(Rodriguez B et al. 2006)</td>
</tr>
<tr>
<td>- 85 (South Africa)</td>
<td></td>
<td>(Williams BG et al. 2006)</td>
</tr>
<tr>
<td>- 65 (Zambia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &gt; 500:</td>
<td>47 (40–54)</td>
<td>(Holmes CB et al. 2006)</td>
</tr>
<tr>
<td>- 351–500:</td>
<td>31 (23–38)</td>
<td></td>
</tr>
<tr>
<td>- 201–350:</td>
<td>20 (14–27)</td>
<td></td>
</tr>
<tr>
<td>Efficacy in reducing HIV transmission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- condom use</td>
<td>0.8</td>
<td>(Kajubi et al. 2011)</td>
</tr>
<tr>
<td>- male circumcision</td>
<td>0.6</td>
<td>Weller and Davis</td>
</tr>
<tr>
<td>- PrEP</td>
<td>0.55–0.73</td>
<td>(Auvert B et al. 2005)</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>(Bailey RC et al. 2007)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grant et al. (2010)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partners PrEP study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Wilkinson et al. 1998)</td>
</tr>
</tbody>
</table>

*For this model, the parameter values were determined by using the literature values as a starting point and fitting the model to Weibull curves of progression to mortality by age from the ALPHA network.*

#### 10.3.2. Cost Analysis

The unit cost estimates were obtained from the recently concluded cost analysis for the National Prevention Study, conducted on behalf of the UAC by the World Bank (Charlotte M Zikusooka & John Cameron 2013). The cost analysis was conducted using the WHO
Unit Cost Calculator, which uses WHO activity descriptions and groupings and the unit cost calculation methodology outlined in the UNAIDS publication entitled *Costing Guidelines for HIV/AIDS Intervention Strategies* (UNAIDS 2004). The unit costs obtained were compared with the published unit costs for relevant interventions, and were comparable.

As detailed above, the costs that were included in this analysis were from the perspective of the Ugandan AIDS Commission *qua* government/health sector. The resources required were identified through consultation with all relevant stakeholders in the HIV prevention. Therefore, all relevant sector costs, and direct and indirect health costs and benefits were included in the analysis. Costs that were shared across all the programmes (termed ‘joint costs’), such as UAC administration costs, were allocated across the programmes proportionately.

In this study, the ingredients approach was used to determine the amount of resources required to implement a particular intervention within the Uganda National Prevention Strategy. This reflected the decision context for this study. The costs obtained were compared with an international unit cost database that assembles unit cost data for HIV/AIDS interventions for LICs and for middle-income and high-income countries.

In this study, the unit cost ‘$p$’ of a resource was multiplied by the total quantity ‘$q$’ of the resource used. The unit costs used in this study were obtained from the costing study described above. Where these costs were not available, they were obtained from the unit cost database for HIV/AIDS programmes developed by the Futures Institute on behalf of UNAIDS. These unit costs are shown in Table 10.4.
Table 10.4: Unit Costs used in the Analysis

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Component</th>
<th>Value (2013 US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media</td>
<td>Cost per person reached</td>
<td></td>
</tr>
<tr>
<td>ART first line</td>
<td>Cost per adult treated for six months, including M&amp;E costs, drugs and laboratory tests</td>
<td>487.3</td>
</tr>
<tr>
<td>ART second line</td>
<td>Cost per adult treated for six months, including M&amp;E costs, drugs and laboratory tests</td>
<td>903.63</td>
</tr>
<tr>
<td>Safe male circumcision</td>
<td>Cost per male circumcised</td>
<td>44.97</td>
</tr>
<tr>
<td>Condom provision</td>
<td>Total costs of promoting condoms</td>
<td>0.27</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>Cost per person tested and counselled, including M&amp;E costs</td>
<td>21.02</td>
</tr>
<tr>
<td>Voluntary counselling and testing</td>
<td>Cost per person counselled and tested, including M&amp;E costs</td>
<td>6.52</td>
</tr>
<tr>
<td>Sex worker outreach programmes</td>
<td>Cost per CSW reached per year</td>
<td>263.18</td>
</tr>
</tbody>
</table>

Costs were discounted at a rate of 3%, which is the recommended discount rate by the panel on cost-effectiveness (Weinstein et al. 1996). In addition, costs were reported in 2013 US dollars and adjusted for inflation. Cost offsets refer to the costs saved from a reduction in the prevalence of HIV/AIDS. For example, this would include costs saved on ART. Inflation of costs was completed using the 1.5% inflation rate.

10.3.3. Benefit Analysis

The identification and measurement of benefits is essential. It requires the use of evidence on the efficacy and/or effectiveness of the interventions. In general, the recommended sources of the evidence for efficacy/effectiveness include meta-analyses of findings from randomised controlled trials, good quality randomised controlled trials and (in the absence of this) longitudinal observational studies.

The best available evidence on the efficacy and effectiveness of interventions was used in this study. The summary of this evidence has published and can be found here (Bollinger et al, 2008).
Given that both CEA and CUA were conducted in this analysis, the benefits of the intervention were provided in terms of ‘HIV/AIDS infections averted’ and ‘DALYs averted’. The source of the DALY weights used in this study was the 2010 Global BOD study (Salomon et al. 2013). The benefits accrued in the study were discounted at a similar rate as that used for costs (3%), as recommended by WHO (Edejer 2003). This rate is used in most economic evaluations in developing countries, thereby allowing the comparability of the results of this study with others.

10.3.4. Cost-Effectiveness Ratios

The results were presented using average cost-effectiveness ratios (ACERs). These were calculated by determining the change in costs and effects (DALYs and infections averted) of the intervention versus the null scenario, in which there were no HIV prevention interventions. The formula used was:

\[ \frac{\Delta C}{\Delta E} \]

Where:

\[ \Delta C = \text{net cost of delivering the service over the null scenario} \]
\[ \Delta E = \text{net benefit of delivering the service over the null scenario} \]

Drawing from the recommendations of the WHO-CHOICE framework, expansion path analysis based on the ACERs of the interventions was undertaken to determine the optimal mix of interventions. The purpose of the expansion path analysis was to assess in what order interventions would be implemented, when starting from the beginning and thus allowing the ideal combination (for various levels of budget spending) to be compared with current practice. Thus, in this analysis, a league table of the average cost-effectiveness of interventions compared to the null scenario was developed, with the most cost-effective at the top and the least cost-effective at the bottom.
10.3.5. Sensitivity Analysis

Given the uncertainties that result from data sources on resource use and benefits, as well as the various assumptions that are made when building models and undertaking analysis, it is essential to assess the effect of this uncertainty on the resulting cost-effectiveness ratios. In this study, scenario-based and probabilistic sensitivity analyses were undertaken. The scenario-based sensitivity analyses regarded different coverage rates of each intervention and discount rates (0% and 5%). In addition, probabilistic sensitivity analysis for different efficacy rates of medical interventions and behavioural interventions in the impact matrix were completed.

10.4. Results

10.4.1. Ideal Mix

The estimates for the ideal mix of services were based on the projected coverage rates for the HIV/AIDS response in the National Prevention Strategy developed by the UAC, as shown in Table 10.1. The five-year costs of implementing this mix of services at these coverage rates are shown in the table below.

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Costs in US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condoms</td>
<td>1,219,455,090</td>
</tr>
<tr>
<td>Voluntary counselling and testing</td>
<td>1,075,897,344</td>
</tr>
<tr>
<td>Male circumcision</td>
<td>214,312,160</td>
</tr>
<tr>
<td>Mass media</td>
<td>4,277,402,178</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>9,641,768</td>
</tr>
<tr>
<td>MARPs</td>
<td>306,983,594</td>
</tr>
<tr>
<td>Rx as prevention</td>
<td>1,022,014,851</td>
</tr>
<tr>
<td><strong>Total cost of the intervention mix</strong></td>
<td><strong>5,830,354,551</strong></td>
</tr>
</tbody>
</table>

As can be seen, rolling out the interventions at the ideal coverage rates would require approximately US$6 billion over five years. It should be noted that this excludes other
important aspects of the HIV/AIDS mitigation arsenal, including care and support for people living with HIV/AIDS, care for orphans and vulnerable children, rehabilitation of people with HIV/AIDS, and others.

The drivers of the high costs are clearly mass media interventions, as well as the costs of treating people with HIV/AIDS. This is not only because of the high numbers of people reached by the interventions at those coverage rates, but also because of the high unit costs, as shown above. It is possible for the high costs of the interventions to be offset by the benefit derived from them. The effect of the intervention mix is shown in the table below.

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Costs (US$)</th>
<th>Infections averted</th>
<th>DALYs averted</th>
<th>Cost per infection averted (US$)</th>
<th>Cost per DALY averted (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condoms</td>
<td>1,219,455,090</td>
<td>419,778</td>
<td>12,827,291</td>
<td>2,905</td>
<td>95.07</td>
</tr>
<tr>
<td>Voluntary counselling and testing</td>
<td>1,075,897,344</td>
<td>442,392</td>
<td>16,070,150</td>
<td>2,432</td>
<td>66.95</td>
</tr>
<tr>
<td>Male circumcision</td>
<td>214,312,160</td>
<td>582,370</td>
<td>17,306,697</td>
<td>368</td>
<td>12.38</td>
</tr>
<tr>
<td>Mass media</td>
<td>4,277,402,178</td>
<td>205,674</td>
<td>12,774,223</td>
<td>20,797</td>
<td>334.85</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>7,310,895</td>
<td>655,404</td>
<td>12,051,551</td>
<td>11.15</td>
<td>0.61</td>
</tr>
<tr>
<td>MARPs</td>
<td>306,983,594</td>
<td>812,637</td>
<td>14,309,662</td>
<td>377.76</td>
<td>21.45</td>
</tr>
<tr>
<td>Rx as prevention</td>
<td>1,022,014,851</td>
<td>974,534</td>
<td>22,421,992</td>
<td>1048.72</td>
<td>45.58</td>
</tr>
</tbody>
</table>

The above table shows that the most cost-effective intervention is blood transfusion followed by safe male circumcision. The table shows that implementing mass media interventions in Uganda at 80% coverage is the least cost-effective measure. Thus, mass media interventions are not only costly, they also provide very little benefit compared to the null scenario, unlike other interventions.

### 10.4.2. Expansion Path Analysis

Based on the ACERs determined above, the best order of incremental investment of the interventions for prevention of HIV/AIDS was as shown in Table 10.7 below.
Table 10.7: Cost and Effect of Serial Investment of Interventions at Ideal Target Coverage Rates

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Ranking</th>
<th>Cumulative DALYS</th>
<th>Cumulative costs (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>1</td>
<td>13,799,926</td>
<td>9,656,718</td>
</tr>
<tr>
<td>1 and circumcision</td>
<td>2</td>
<td>16,073,170</td>
<td>275,336,895</td>
</tr>
<tr>
<td>2 with MARPS</td>
<td>3</td>
<td>17,158,157</td>
<td>353,092,214</td>
</tr>
<tr>
<td>3 and treatment as prevention</td>
<td>4</td>
<td>23,244,821</td>
<td>901,480,756</td>
</tr>
<tr>
<td>4 and VCT</td>
<td>5</td>
<td>25,022,710</td>
<td>1,171,531,113</td>
</tr>
<tr>
<td>5 and condoms</td>
<td>6</td>
<td>26,586,650</td>
<td>1,469,500,549</td>
</tr>
<tr>
<td>6 and mass media</td>
<td>7</td>
<td>27,031,427</td>
<td>2,013,384,064</td>
</tr>
</tbody>
</table>

As can be seen, interventions such as mass media and provision of condoms have little additional effect in reducing DALY accrued due to HIV/AIDS. In addition, the five-yearly costs of implementing the programmes increase steeply once counselling and testing for HIV/AIDS are included in the intervention mix. Figure 12.2 is a graphical representation of the information included in the table above.

Figure 10.2: Expansion Path for the Ideal Mix of Interventions

0 = null scenario, 1 = blood transfusion alone, 2 = 1 and male circumcision, 3 = 2 and programmes for MARPs, 4 = 3 and treatment as prevention, 5 = 4 and voluntary counselling and testing, 6 = 5 and condoms, 7 = 6 and mass media
10.4.3. Optimisation of the HIV Prevention Response

The recent fiscal space analysis for the HIV prevention response revealed that funds availed from the Government of Uganda and the ADPs are as shown in Table 12.8 below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Costs available (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>345,900,000</td>
</tr>
<tr>
<td>2014</td>
<td>350,500,000</td>
</tr>
</tbody>
</table>


Based on these estimates, only blood transfusion, safe male circumcision and peer counselling programmes for MARPs can be fully funded and implemented at the ‘ideal’ level, as shown in the expansion path analysis above. This implies that, at this level of funding, only 17,158,157 DALYS can be averted. In addition, only 471,664 new HIV/AIDS infections would be averted over the 15-year follow-up period. The costs of the current mix of services in Uganda are shown in the table below. The table above shows that the current mix of services costs approximately the same amount of money as the funds that have been availed for the HIV/AIDS response.
Table 10.9: Five-Year Costs for Implementing HIV/AIDS Services at the Current Levels of Coverage

<table>
<thead>
<tr>
<th>Year</th>
<th>Costs at 3% discount rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>326,665,084</td>
</tr>
<tr>
<td>2012</td>
<td>316,350,252</td>
</tr>
<tr>
<td>2013</td>
<td>331,946,864</td>
</tr>
<tr>
<td>2014</td>
<td>343,536,617</td>
</tr>
<tr>
<td>2015</td>
<td>363,024,098</td>
</tr>
</tbody>
</table>

Cumulative five-year cost: 1,681,522,917

An assessment of the effect of the current mix of services shows that, over the 15 years, the expected number of infections averted is 387,000 and would avert 10 million DALYS. This is much less than the benefit that could be obtained by rolling out blood transfusion, safe male circumcision and peer counselling programmes for MARPs at the coverage levels in the expansion path analysis.

Table 10.10: Effect of Current and Ideal Mixes for Prevention of HIV/AIDS Infection

<table>
<thead>
<tr>
<th>Impact measure</th>
<th>Discounted measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current mix of services</td>
<td></td>
</tr>
<tr>
<td>• infections averted</td>
<td>387,389</td>
</tr>
<tr>
<td>• DALYs averted</td>
<td>8,717,495</td>
</tr>
<tr>
<td>Investment at ideal levels for blood transfusion,</td>
<td></td>
</tr>
<tr>
<td>circumcision and MARPS programmes</td>
<td></td>
</tr>
<tr>
<td>• infections averted</td>
<td>460,343.17</td>
</tr>
<tr>
<td>• DALYS averted</td>
<td>17,158,157</td>
</tr>
</tbody>
</table>

The table above shows that it is possible to improve on the benefit that can be derived from the mix of services. Thus, there is need to create a more optimal mix of services for the prevention of HIV/AIDS.

Given the available resources shown in Table 10.8, optimisation of the HIV/AIDS response was undertaken by adjusting the coverage levels of the least cost-effective interventions in the ideal mix shown in the table and the expansion path analysis. Numerous scenarios were conducted in which the coverage rates for the least cost-
effective interventions were reduced. Once the coverage rate was reduced, the coverage rates for the other interventions in the service mix were increased until the cost of the interventions was similar to the funds available for the response. Following this, the number of infections and DALYS averted were calculated to determine the most optimal mix of interventions.

Table 10.11: Effect of Reallocation of Resources within the Intervention Mix

<table>
<thead>
<tr>
<th>Intervention and coverage rate</th>
<th>Infections averted</th>
<th>DALYs averted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduced</strong>: Mass media from 30% to 20%</td>
<td>551,353</td>
<td>11,670,392</td>
</tr>
<tr>
<td><strong>Increased</strong>: MARPS to 30%, circumcision to 38%, treatment to 38%, VCT to 30%, condoms to 30%, blood transfusion to 100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Reduced**: Mass media from 30% to 15% | 676,558 | 12,476,809 |
| **Increased**: MARPS to 35%, circumcision to 38%, treatment to 38%, VCT to 30%, condoms to 35%, blood transfusion to 100% | | |

| **Reduced**: Mass media to 15% | 674,123 | 11,848,797 |
| **Increased**: VCT to 35%, condoms to 25%, MARPs to 25%, treatment to 38%, circumcision to 42%, blood transfusion to 100% | | |

| **Reduced**: VCT to 20% | 545,552 | 10,622,074 |
| **Increased**: Mass media to 30%, condoms to 25%, MARPs to 20%, safe male circumcision to 35%, treatment as prevention to 35% | | |

| **Reduced**: Condom provision to 10% | 553,903 | 10,731,278 |
| **Increased**: VCT increased to 35%, mass media to 30%, MARPs to 20%, male circumcision to 36%, treatment to 34% | | |

| **Kept constant**: Treatment at 240,000 PLWHA treated | 525,409 | 9,451,639 |
| **Increased**: MARPS to 30%, VCT to 35%, condoms to 30%, mass media to 30%, safe male circumcision to 30% | | |

| **Reduced**: Treatment as prevention to 28% | 544,927 | 9,524,733.25 |
| **Increased**: Circumcision to 40%, MARPS to 30%, VCT to 35%, mass media and condoms to 30% | | |

Reallocations that involved reduction in the coverage of mass media for prevention of HIV/AIDS generally yielded more infections and DALYS averted for similar amounts of money, as can be seen in Table 10.11. Interventions involving reallocations from treatment to other programmes yielded the least benefit. Of the scenarios generated, the most optimal allocation involved a reduction of the coverage of mass media interventions from 30% to 15%, as highlighted above.
It is evident that there is room for optimisation of the response, given the budget constraint. Based on the results above, a more optimal—albeit not the ‘most optimal’—response would be to reduce outlays to mass media and target coverage of 15%, and reallocate the funds to VCT (35% from 30%), condoms (from 16% to 35%), MARPs (from 10% to 35%), treatment (from 32% to 38%) and circumcision (from 26% to 38%). Finally, in this reallocation, blood transfusion remains constant at 100%. This mix of services results in a 43% increment in the DALYs.

10.4.4. Uncertainty Analysis

10.4.4.1. Scenario-based Sensitivity Analysis

The scenario-based analysis was conducted for the discount rate and coverage rate in order to assess the effect of these input factors on the robustness of the cost-effectiveness results.

<table>
<thead>
<tr>
<th>Table 10.12: Sensitivity Analysis Based on Discount Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intervention</strong></td>
</tr>
<tr>
<td>Condoms</td>
</tr>
<tr>
<td>VCT</td>
</tr>
<tr>
<td>Male circumcision</td>
</tr>
<tr>
<td>Mass media</td>
</tr>
<tr>
<td>Blood transfusion</td>
</tr>
<tr>
<td>MARPs</td>
</tr>
<tr>
<td>Treatment</td>
</tr>
</tbody>
</table>

Discount rate at 5%

| Condoms | 10,990,807 | 355,704 | 1,052,172,432 | 2,958 |
| VCT | 13,711,873 | 374,219 | 919,830,302 | 2,458 |
| Male circumcision | 15,445,397 | 494,665 | 201,823,320 | 408 |
| Mass media | 10,917,626 | 174,791 | 3,656,802,511 | 20,921 |
| Blood transfusion | 11,052,680 | 583,197 | 9,114,314 | 16 |
| MARPs | 12,194,684 | 713,777 | 73,375,296 | 103 |
| Treatment as prevention | 24,944,310 | 388,410 | 465,854,922 | 1,199 |

As Table 10.12 shows, the discount rate used had no effect on the rankings of the interventions according to their cost-effectiveness ratios. Univariate sensitivity analysis based on the coverage rate of the interventions was also conducted. As Table 10.13 shows, the only intervention that was sensitive to the coverage rate was treatment as prevention. In this analysis, the cost-effectiveness of the intervention increased with a decline in the...
coverage rates. This was most likely due to reducing costs of treatment overtime due to reducing infection rates with higher coverage rates.

Table 10.13: Univariate Sensitivity Analysis Based on the Coverage Rates of the Interventions

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Infections averted</th>
<th>ACER ($/infections averted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circumcision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td>582,370</td>
<td>368</td>
</tr>
<tr>
<td>60%</td>
<td>384,762</td>
<td>351</td>
</tr>
<tr>
<td>40%</td>
<td>165,971</td>
<td>335</td>
</tr>
<tr>
<td>Treatment as prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>454,056</td>
<td>1,088</td>
</tr>
<tr>
<td>40%</td>
<td>339,227</td>
<td>1,145</td>
</tr>
<tr>
<td>30%</td>
<td>235,269</td>
<td>1,209</td>
</tr>
<tr>
<td>Mass media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td>205,674</td>
<td>20,797</td>
</tr>
<tr>
<td>50%</td>
<td>131,446</td>
<td>20,333</td>
</tr>
<tr>
<td>30%</td>
<td>80,051</td>
<td>20,029</td>
</tr>
<tr>
<td>Condoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td>419,778</td>
<td>2,905</td>
</tr>
<tr>
<td>60%</td>
<td>321,069</td>
<td>2,848</td>
</tr>
<tr>
<td>40%</td>
<td>217,841</td>
<td>2,797</td>
</tr>
<tr>
<td>VCT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%</td>
<td>442,392</td>
<td>2,432</td>
</tr>
<tr>
<td>60%</td>
<td>344,852</td>
<td>2,339</td>
</tr>
<tr>
<td>40%</td>
<td>237,194</td>
<td>2,267</td>
</tr>
</tbody>
</table>

1.1.1.1. Probabilistic Sensitivity Analysis

Probabilistic sensitivity analysis was completed using Monte Carlo simulation in the GOALS model. The input factors in the impact matrix and the efficacy estimates were included in the uncertainty analysis. For each intervention, 1,000 iterations were conducted using the lower and upper bounds of 95% confidence levels to assess the degree of uncertainty due to these factors. As can be seen in Table 10.14, only treatment as prevention demonstrated a high degree of uncertainty compared to the other interventions. Thus, the results in this analysis provided robust estimates.
Table 10.14: Probabilistic Sensitivity Analysis

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Median</th>
<th>Cost/DALY averted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circumcision</td>
<td>7.71</td>
<td>(6.08–8.40)</td>
</tr>
<tr>
<td>Mass media</td>
<td>43.25</td>
<td>(33.39–46.57)</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>0.72</td>
<td>(0.56–0.78)</td>
</tr>
<tr>
<td>MARPS</td>
<td>5.52</td>
<td>(4.33–6.03)</td>
</tr>
<tr>
<td>Treatment as prevention</td>
<td>20.78</td>
<td>(0.07–97.58)</td>
</tr>
<tr>
<td>Condoms</td>
<td>23.54</td>
<td>(21.27–25.53)</td>
</tr>
<tr>
<td>VCT</td>
<td>12.38</td>
<td>(9.57–13.34)</td>
</tr>
</tbody>
</table>

10.4.5. Second-Stage Filter Analysis

Following the CEA in keeping with the ACE method, an analysis of the second-stage filters was conducted, as shown in the table below, in order to broaden the concept of benefit in determining the optimal response or levels of coverage for the different interventions. All criteria in the analysis had equal weight.
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Cost-effectiveness ratio (US$/DALY)</th>
<th>Strength of the evidence</th>
<th>Acceptability</th>
<th>Sustainability</th>
<th>Equity</th>
<th>Affordability</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass media</td>
<td>Cost-effective</td>
<td>Weak</td>
<td>Politically and culturally acceptable</td>
<td>Sustainable</td>
<td>Intervention is likely to apply to all risk groups</td>
<td>Intervention is likely to be costly at higher coverage rates</td>
<td>7</td>
</tr>
<tr>
<td>Policy consideration: The cost-effectiveness ratio is favourable, but is less so than the rest of the interventions. In addition, it is likely to be costly at high coverage rates, which is likely to affect its sustainability. In addition, the evidence of effectiveness is weak; thus, cost-effectiveness results should be taken with caution and policy recommendations made in light of this fact.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Blood safety                      | Cost-effective                      | Strong                   | Politically and culturally acceptable | Probably highly sustainable | Highly equitable | Very affordable | 1 |
| Decision point: The cost-effectiveness ratio is the most favourable of all the interventions in the mix assessed. The second-stage filters also favour its implementation. |
| Policy consideration: Maintain at the current level of coverage. |

| Voluntary counselling and testing | Cost-effective                      | Strong                   | Client-initiated testing is likely to be culturally acceptable, unlike provider-initiated testing. Client-initiated testing is also likely to be politically acceptable | Sustainable | Equity implications of the intervention are likely to be influenced by the coverage and barriers to access to HCT | The study has shown that it is likely to be affordable | 2 |
| Decision point: Programme should be considered for increased investment or scale-up. |
Policy consideration: Despite the fact that the intervention is ranked low in the league table, it is still cost-effective with respect to the threshold recommended. With regard to the second-stage filters, it is likely that the intervention (client-initiated VCT) will be acceptable and cost-effective. However, for maximum effect, it is important to address issues that may affect access to VCT in order to make the intervention more equitable.

| Male circumcision | Very cost-effective | Very strong based on RCT | Political acceptability of male circumcision has been low in the past, although culturally it is likely to be acceptable. In a study that included a two-stage household survey in four districts in Uganda, it was demonstrated that up to 60% of Ugandans were willing to be or have their children circumcised (Albert et al. 2011). Another study also showed high acceptability for circumcision (Kigozi et al. 2013) | The intervention is likely to be sustainable | It is likely that the intervention will have no negative equity implications | The analysis shows that it is likely to be affordable |

Decision point: Increase coverage of male circumcision | 4
<table>
<thead>
<tr>
<th><strong>Condom provision</strong></th>
<th><strong>Cost-effective</strong></th>
<th><strong>Strong level of evidence for condom efficacy and provision, based on meta-analysis and systematic review of the evidence</strong></th>
<th><strong>Political and cultural acceptability is increasingly high</strong></th>
<th><strong>It is likely to be sustainable</strong></th>
<th><strong>The condoms are mainly male condoms. Given the gender imbalances in this setting, this promotes a male-controlled intervention, which means that women may not have the power to negotiate for their protection during intercourse</strong></th>
<th><strong>It is likely to be affordable</strong></th>
</tr>
</thead>
</table>

**Decision point:** For scale-up within the constraints of resources available.

**Policy considerations:** Overall the performance of the intervention is good in light of cost-effectiveness, acceptability and sustainability. To increase gender sensitivity, government could consider scaling up and encouraging adoption of female condoms as well.

<table>
<thead>
<tr>
<th><strong>Peer counselling programmes for MARPS</strong></th>
<th><strong>Cost-effective</strong></th>
<th><strong>Strong evidence based on randomised control trials</strong></th>
<th><strong>Programmes are likely to be resisted in Uganda. CSWs and MSM are illegal</strong></th>
<th><strong>The sustainability of this intervention is likely to be affected by the</strong></th>
<th><strong>The intervention is highly equitable in the sense that it</strong></th>
<th><strong>The interventions are likely to be affordable based on the</strong></th>
</tr>
</thead>
</table>
populations in Uganda; therefore, it is unlikely that programmes would be easily accepted in this country. It is also likely that, culturally, these interventions would have little acceptability.

acceptability of the programmes

improves condom provision and information for population groups that are difficult to reach via interventions targeting the general population

cost estimates in this study

| Decision point: Programmes should be introduced and scaled up over time while addressing issues of stigma as a critical enabler of program success. | 5 |
| Policy consideration: The programs address important issues of cost-effectiveness and equity. Given that these groups are an increasing public health concern means that investing in the prevention for these groups is important. However, the implementation of these programmes and mobilizing these groups is likely to affect successful implementation. |

<p>| Treatment | The intervention is ranked low on the league table, although it is cost-effective at the threshold level | The evidence is strong based on randomised control trials | This intervention is highly acceptable both politically and culturally | The sustainability of this intervention is likely to be affected by the cost of the intervention, given growing need for ART | The fact that people with higher CD4 levels are eligible means that people in greater need of ART because of lower CD4 counts may not get treatment while those |
| The intervention is less likely to be affordable since the costs are high, as has been shown |</p>
<table>
<thead>
<tr>
<th>Decision point: For scale-up.</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy considerations: The main issue with treatment for prevention is the sustainability of the programs given the fact that the drugs are costly and the number of people requiring treatment is still increasing.</td>
<td></td>
</tr>
</tbody>
</table>
The second-stage analysis above shows that blood transfusion, programmes for MARPS and circumcision should be scaled up because of their cost-effectiveness and sustainability. Despite the fact that they are cost-effective, programmes for MARPS and condoms are likely to have poor acceptability. Mass media programmes are acceptable; however, the evidence of effectiveness, cost-effectiveness and affordability are such that, given a budget constraint, they should be scaled down in favour of more cost-effective, equitable and acceptable interventions.

The second-stage filter analysis rearranges, to a small extent, the relative importance of the interventions in the service mix above. While peer-counselling programmes for MARPS are cost-effective, their political and cultural acceptability are likely to undermine their scale-up; thus, they are ranked low. On the other hand, the acceptability and equity implications of treatment improve their ranking compared to programmes such as condom use.

10.5. Discussion

The estimates of the current number of infections in Uganda closely mirrors those estimated by UNAIDS in 2011. In addition, the number of new infections that were determined in the model were similar to those reported by UNAIDS and UAC. The WHO Commission of Macroeconomics recommended that a cost-effectiveness threshold for a country should be equivalent to three times the GDP of that country. In Uganda, the GDP per capita is US$547, which implies that the threshold is US$1,641 per DALY averted. Using this threshold, it is clear that all interventions are cost-effective in this setting.

Studies that have assessed the cost-effectiveness of interventions to combat HIV/AIDS in LICs have found similar estimates of cost-effectiveness. For instance, Creese et al. (2002) found that counselling and testing were less than US$75 per DALY averted, which is similar to what was found in this study. In addition, it was found that blood transfusion services for prevention of HIV/AIDS were cost-effective, at less than US$1 per DALY averted and US$11 per HIV/AIDS infection averted.
Similarly, treatment has been shown to be cost-effective in similar settings to Uganda. An assessment of the cost-effectiveness of HIV/AIDS interventions in Chad resulted in broadly similar findings of cost-effectiveness (Hutton, Wyss & N'Diékhor 2003). However, the ranking of the cost-effectiveness of the interventions was somewhat different. For instance, the study found that blood screening and peer counselling programmes for sex workers were cost-effective, with estimates below US$100 per infection averted. However, unlike this study, it was found that mass media interventions were more cost-effective than VCT. The reason for this discrepancy might include the assumptions regarding the effectiveness of mass media interventions. In the cost-effectiveness assessment in Chad, it was assumed that mass media interventions have an effect of 5% reduction on new HIV/AIDS infections. In addition, it was assumed that US$500,000 would be used for an entire countrywide campaign; thus, the unit costs were much lower than in the current study.

Only one study in SSA has conducted an optimisation exercise for reallocation of HIV/AIDS services. Lasry et al. (2008) completed an optimisation exercise for HIV/AIDS services in a clinic at KwaDukuza, South Africa. Using cost-effectiveness estimates from disparate sources from the published literature, rankings for cost-effectiveness of different interventions compared to the null were obtained, and optimisation was conducted for the reallocation of the resources. According to this study, condom provision should be increased from 1% to 15%, and the portion allotted to prevention and treatment of opportunistic infections should be increased from 43% to 71%, while allocation to other interventions should decrease. In the current study, even though the most optimal allocation has not been shown, it has been similarly indicated that there is scope for reallocation, with reallocation from mass media interventions to increments in other interventions producing greater than 40% increment in DALYs averted.

The consideration of factors other than cost-effectiveness creates significant changes in the ranking of the interventions. In other settings, consideration of criteria other than
efficiency showed that cost-effectiveness alone is not the essential criterion that affects the adoption of interventions for a condition. For instance, Youngkong et al. (2012) used multiple criteria to rank 40 interventions for HIV/AIDS in Thailand. In this context, interventions that targeted high-risk groups and were effective were ranked higher than interventions that were cost-effective.

The approach selected in this thesis provides a great opportunity to reconcile all the evidence pertinent to priority-setting for HIV/AIDS, including evidence on effectiveness of best-practice, cost-effectiveness, equity implications, affordability, sustainability, feasibility and acceptability. In addition, it provides a mechanism for engaging all relevant stakeholders in a manner that is transparent and fair. Perhaps the most important feature of the framework is the inclusion of other objectives of decision-makers beyond the traditional technical concerns of effectiveness and cost-effectiveness. It provides a mechanism in which all the objectives of decision-making are brought to bear and have an impact on the final decision reached in a manner that fosters transparency.

The study has also shown that the data with regards to HIV/AIDS is largely available and that the tools exist that can be used to provide better information for decision-making purposes. It is therefore likely that the approach can be used in this setting to guide resource allocation. It is important to note that the for some interventions, like mass media, the evidence is weak, but as Alan Williams argues, weak evidence can be improved with time as we use available information systematically and explicitly to guide resource allocation.

In a time when integrated delivery of health services is being advocated for, as well as options of mainstreaming HIV/AIDS with the broader health sector are being explored, it is important to consider the relevance of the priority-setting approach adopted here. Can the approach above be used to guide priority-setting that suits this purpose? The answer to that question is ‘yes’. Not only has this approach been used to set priorities around specific disease silos, it has been used to set priorities for prevention for communicable and non-communicable diseases. Of course such an exercise would require a lot of
technical expertise with regard to skills such as economic evaluation. The good news is that the tools for some of these analyses are readily available, for instance the One Health Costing tool.

One of the concerns of decision-makers in Uganda was that the approach should incorporate both national and sub-national levels of decision-making in Uganda. The approach provides a way of doing this through a consultative process that involves the district decision-makers. In addition, the goals model used in this study is able to conduct a sub-national projection of cost-effectiveness at the district and regional levels. The main limitation in this study was that the data availability at this level was not adequate. The level of disaggregation of data in credible sources like the Demographic health survey and the AIDS Indicator Survey was not sufficient to conduct a sub-national analysis. Future data collection exercises should take into account the need for this kind of data for informing decision-making.

10.6. Limitations of the Study

The purpose of the pilot study was to illustrate that the chosen framework can be used with success in the HIV/AIDS decision context in Uganda. The study was conducted using GOALS model and the overarching ACE approach. As such, the interventions included, though relevant, were largely limited to the ones included in the GOALS model. With regard to programmes for MARPs, the model includes interventions for CSWs and for MSM only. However, in Uganda, MARPs include many more groups than these, such as the fishing community, truck drivers, boda-boda riders and more. Thus, the rates of transmission and mechanisms of engagement are likely to differ from those included in the model.

The approach was piloted as a part of an academic exercise. Despite the fact that important stakeholders were involved in the pilot study, not all of them were involved. This therefore requires the dissemination of the approach and the findings of the study amongst a wider group of stakeholders to facilitate buy-in or the legitimacy of the approach. In addition, the pilot study showed that a high level of technical expertise is required to provide the
evidence on effectiveness and cost-effectiveness. This might pose a challenge since it might require capacity building efforts for staff at Uganda AIDS Commission to conduct the technical analyses. As noted earlier, these have usually been the preserve of international and local consultants.

The pilot study in this thesis introduces the important issue of optimization of health interventions in the midst of scarce resources. This however implies disinvestment of programmes that are not as cost-effective as others. In this study mass media programs were highlighted as candidate programmes for disinvestment. It should be noted that this is on the basis of evidence on the impact of mass media interventions on the uptake of safe sex behaviours. The evidence is weak. The UNAIDS investment framework for HIV/AIDS identifies mass media interventions as critical enablers for the implementation of a good HIV/AIDS response. In addition, despite their expense, the interventions have huge political support. This highlights the tension that arises in the consideration of the evidence from technical analyses like cost-effectiveness and other broader political objectives. It further highlights the importance of judgement to determine the appropriate level of disinvestment that should be achieved in favour of increasing the impact of other interventions.

The focus of this thesis has been on prevention in adults. This is a relevant focus point since most infections start in this population. This, however, ignores vertical transmission of HIV/AIDS from mother to child. It could be argued that focusing on adults and not children is a way of preventing mother to child transmission of HIV/AIDS before the mother gets infected. In addition, treatment for HIV/AIDS infected women before they get pregnant is another way of preventing mother to child transmission (PMTCT). Nevertheless, PMTCT options involving antiretroviral therapy for pregnant mothers such as option B+ and infant feeding options remain important interventions for achieving an HIV/AIDS free generation. The study did not include the assessment of these PMTCT options, although there is scope for doing so generally and the GOALs model certainly provides for the evaluation of the impact and resource needs of PMTCT interventions.
The approach adopted in this paper is able to guide priority-setting for PMTCT interventions.

10.7. Conclusion

This thesis has summarised a protocol for the development of an optimal mix of interventions for primary prevention of HIV/AIDS in Uganda. In doing so, it has highlighted the unique aspects of the ACE methodology and the manner in which it was implemented in this study. The ultimate goal of the study was to demonstrate the feasibility of the framework in this decision context. Despite this, it is hoped that knowledge transfer for the purposes of policy formulation and resource allocation will provide a spill over effect.
PART D: DISCUSSION
Chapter 11: Discussion

The thesis was premised on the need for priority-setting, particularly explicit and systematic priority-setting for HIV/AIDS in Uganda. The major rationale for this has been the fact that in most cases resource allocation for HIV/AIDS has not been aligned to the populations where the risk of transmission is highest. In addition, there has been an inordinate focus on treatment for HIV/AIDS compared to other priorities.

The review of the literature shows that at the global level and in most LIC countries, there is growing recognition of the need for explicit priority-setting for health and HIV/AIDS in the form of empirical inquiry and in the use of systematic priority-setting methods to determine priorities.

There is also growing recognition for the concomitant use of substantive principles and to guide selection of priorities within a broader consultative and deliberative process that is transparent and fair and enables consensus building. These principles are usually couched within formal evaluation techniques such as economic evaluation.

With time the priority-setting approaches that have been developed have achieved the balance between considerations of the substantive principles with regard for due process. The Assessing Cost-Effectiveness approach proposed for adoption by this thesis is one such model. As the discussion in chapter 9 shows this framework addresses to a greater extent the issues of concern highlighted in the checklists and the local stakeholders.

The discussion here is focused on whether the study accomplished its main goal: to determine the ideal approach to priority-setting for HIV prevention among adults in Uganda. In addition it discusses the feasibility of implementing the proposed priority-setting approach in this setting. In particular, it is using the framework by Hogwood et al (Hogwood & Gunn 1984) to assess the likelihood of successful implementation of policy. Lastly, an assessment of the feasibility of implementing the framework in light of the realities of the political nature of priority-setting is conducted.
The methodology used in this thesis used guidance from economic and ethics theory, the empirical experience of priority-setting in different settings including Uganda; and the values identified by local stakeholders to determine what is ‘ideal’. It is important to note that the ‘ideal’ approach is one that is pragmatic. In other words the ‘ideal’ approach combines technical rigour with practicality and addresses the decision needs of decision-makers. In some cases, this might mean a trade-off between some criteria such as mechanisms for assessing cost-effectiveness or engaging stakeholders and affordability (at least in the short term).

Based on the methodology used in this study, the checklist that was developed enshrines what is ideal. The study set mechanisms for determining the ideal approach to priority-setting in Uganda. These included the use of weights to determine the relative importance of criteria that were identified. In addition, the use of thresholds to further determine the success of the approaches against the criteria. The ACE approach scored above threshold on all the most important criteria. Despite the fact that it did not achieve perfect scores on these criteria, it achieved scores above the threshold. The PBMA approach also scored highly on these criteria. In that sense since the two approaches met the above criteria, they both fulfil the definition of the ‘ideal approach’. However, since the ACE approach scored highest of all the approaches considered, the approach was selected as the most appropriate.

It is important to note that the thesis set out to determine the “ideal” priority-setting approach for the prevention of HIV/AIDS in Uganda. Further still, the title of the thesis suggested that this approach would be novel to priority-setting in Uganda. The ACE approach is certainly a recent innovation that has been implemented in other settings. The novelty of the approach lies in the fact that ACE has never been used for priority-setting in LICs, let alone Uganda. Further, the ACE approach has not been used before specifically for setting priorities for HIV/AIDS. It also is novel in this context because unlike the BOD study that was conducted in Uganda in the 1990’s, it provides more scope for due process and a systematic way for considering other objectives of importance to decision-makers in Uganda other than efficiency and need.
According to Hogwood and Gunn, one factor that may affect the implementation of the proposed approach to priority-setting is whether there are external factors that might impede successful implementation of the priority-setting process using this framework. These external factors may be lack of funding for the priority-setting process or in the case of Uganda and other low income countries the lack of consensus by ADPs. The factors highlighted here are unlikely to impede the successful implementation of the policy due to the fact the pilot demonstrated high support for ADP representatives included in the study and also given that there is increased recognition of the need for systematic priority-setting by ADPs.

Another factor that would affect the implementation of the proposed approach for priority-setting is the availability of resources and time to implement the approach. Chapter 9 showed that it is likely to be affordable in this setting. The pilot project used the GOALS model that has been used to determine priorities for HIV/AIDS in Uganda in the past. The resources and time required to conduct the analyses in the ACE approach using GOALS or other models as well as the deliberations would be similar to those that have been used in the past. Thus in this regard, the approach is feasible in this context.

A related factor is the availability of the right skill mix or combination of the resources to implement the priority-setting approach. In this regard the key resource mix would be the availability of health economists to conduct the analyses included in the ACE approach given that marginal analysis is a key component. In addition, the availability of skilled people who would guide the deliberations in the priority-setting process are essential. Lastly, the availability of the institutional mechanisms requisite for fair and transparent priority-setting is crucial. All these are requisite resources for the feasibility of implementation of the approach. There is available technical capacity to implement both the technical components of the approach given the growing availability of health economists in Uganda. In addition, there are institutional mechanisms that would permit the implementation of the approach. These include the AIDS Partnership Forum and the Self Coordinating entities that can be used to engage all the stakeholders.
The framework by Hogwood et al also indicates that for successful implementation of the approach, there would be minimum dependency relationship in the implementation of the approach. This implies that there would be little dependence on external factors like donor aid and technical assistance to implement the approach. This is unlikely to be the case as has been discussed above.

Hogwood and Gunn suggest that it is important for there to be perfect understanding and agreement on the approach in order for it to be successfully implemented. This is similar to what is suggested by Sibbald et al. The pilot study set out to build understanding and consensus on the value and nature of the framework. Amongst the stakeholders involved in the study, there was understanding of the framework and its value. However, there would be a need to sensitize more stakeholders on the framework and to involve more stakeholders in the priority-setting process.

The ACE approach clearly outlines the tasks that have to be followed in the priority-setting process in order to achieve the desired results. These include the roles of different entities such as the technical working groups and steering committees. In addition, it provides clear guidance for selecting interventions given a multitude of often conflicting objectives. This makes the likelihood of successfully implementing the priority-setting approach proposed very high.

The discussion thus far has shown that it is feasible to implement the proposed priority-setting approach. It should be noted that the ACE approach selected also fulfilled criteria that were drawn from economic and ethical theory, addressed the major issues that have arisen in the priority-setting literature as important and lastly addressed the specific concerns of stakeholders in the HIV/AIDS response in Uganda. Its theoretical validity balanced with its pragmatic relevance to stakeholders in this decision context make it likely to be accepted by stakeholders, thus increasing the likelihood that it will be implemented.
Given the timeframe in which the study was conducted and the scope of the thesis, it was impossible to determine how successful the ACE approach would be in influencing resource allocation decisions and the impact it would have on the epidemic. However, the pilot study showed the likely impact of resource allocations made based on the analysis and the use of the ACE approach. In light of the shortcoming of this study, the section below outlines recommendations for increasing the likelihood that the ACE approach is would be successfully implemented.

The approach is well suited to the macro decision-making level that is crucial for determining the strategic direction for the country. The ability to include all potential stakeholders in the priority-setting process is a feature that this approach excels at and which is crucial for effective priority-setting i.e. priority-setting that will result in implementable solutions due to consensus on priorities and interventions. Further, ACE demonstrates the ability to include different types of stakeholders, as it is able to link different levels of priority-setting to the macro level. The meso level could be included in the priority-setting process through district representatives in the Technical Working Groups and Steering Committee. This is similar for the inclusion of the MARPS and the general public. In addition, the mega level could be included using ADP representatives in the Technical Working Groups and the Steering Committee. This has been demonstrated by the pilot study.

However, it is important to emphasize the importance of strong leadership for the process by the Uganda AIDS Commission. This is important to ensure effective consultation with all stakeholders and prevent having the decision making process being high jacked by dominant parties. The reality of the priority-setting process is that there are different players with different levels of power and ability to influence the priority-setting process. In addition, the fact that some policy actors have more power and resources than others means their buy-in is crucial for implementing priorities and interventions that have been agreed on in the priority-setting process. To ensure this, deliberations have to be guided by strong leadership. At the moment there are challenges with governance and leadership
which would have to be addressed in order to have effective engagement of all stakeholders.

The limitation of the priority-setting approach in this setting is that it requires significant investments in institutional capacity to adopt and institutionalize it. These would include the recruitment of health economists and people with the skillsets within the Uganda AIDS commission to synthesise the epidemiologic evidence. This is because within the Uganda AIDS Commission, this skill set is currently missing.

The study has found that the priority-setting process for HIV/AIDS has evolved over the years in terms of the level of engagement of different stakeholders and the use of evidence to inform the decision making process. Even though the ACE approach proposed in the thesis provides for more effective engagement of these important stakeholders, the pilot study conducted here did not use the best mechanisms to engage them. For instance community consultations for the general population through mechanisms like rapid rural appraisal could have been used but were not. This was mainly due to limitations in time. This does not however, detract from the efficacy of the tool given the right circumstances and resources.
Chapter 12: Conclusions and Recommendations

The research question set out in this thesis was:

*What is the ideal priority-setting approach for the prevention of HIV/AIDS in Uganda?*

The main objectives in the study were:

- To describe the priority-setting context, processes and evolution with respect to HIV prevention in Uganda
- To determine the theoretical and stakeholders’ most critical criteria required by a strong priority-setting process for HIV/AIDS.
- To evaluate the performance of existing priority-setting approaches based on the critical criteria identified
- To propose and evaluate an approach for priority-setting for HIV prevention in Uganda.

The thesis has established the importance of explicit and systematic priority-setting. The literature review established that there is growing recognition of the need for explicit priority-setting. In addition the qualitative study conducted amongst stakeholders in the country reaffirmed the recognition in this setting of the need for explicit and systematic priority-setting.

The thesis has attempted to answer the objectives set out in this thesis and ultimately the research question. The study has found that the priority-setting process for HIV/AIDS has evolved over the years in terms of the level of engagement of different stakeholders and the use of evidence to inform the decision making process. Despite this however, there is still room for growth in the manner that different stakeholders are engaged. These are particularly, the MARPS and the general public.

In addition, the review of the literature and the empirical work undertaken in the thesis have established the fact that for effective priority-setting, attention to due process and consensus building (with particular reference to transparency and accountability) is as
important as a consideration of the substantive principles and values that should guide priority-setting.

A key finding was that by virtue of the fact that making decisions on who should benefit and who should lose are value laden, priority-setting is necessarily contextual. Given this, despite the role of the mega level in priority-setting, there is need for local decision-making at the country level to ensure that priorities selected are based on values that are prevalent locally. This is key for implementation.

The thesis developed a checklist that was used to assess existing priority-setting frameworks. The broad components of the checklist include a need for consideration of opportunity cost and marginal analysis, regard for due process, regard for technical rigour and a need for decision rules to adjudicate between competing alternatives.

In general priority-setting approaches that explicitly combine a regard for due process with the technical principles performed better on the checklist. The Assessing Cost-Effectiveness approach to priority emerged as a good candidate for adoption. However, as the discussion in Chapter 11 shows, it may not be very easy to institutionalize the approach. Some necessary steps that might be necessary to the adoption and institutionalization of the priority-setting approach in the Ugandan context.

- Wide dissemination of the approach amongst decision-makers is critical for its adoption, uptake and institutionalization. Dissemination of the tool should include messages on the nature of the approach and the additional value that it brings to decision-making. Lastly it should include the likely changes that need to be made in order to have it institutionalized. The use of policy briefs and dissemination workshops are important ways that this could be achieved.

- Like most decision-making aids, the method may require reliance on consultancy services (including local health economists) to facilitate the decision-making process as the necessary institutional capacity is built. This might include
recruitment of the necessary staff and ongoing capacity building as new innovations emerge in the area of priority-setting.

- In addition, as one of the respondents in the study noted, there is a need to have a policy champion for the framework. The policy champion should be high up in the decision-making process.
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